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ABSTRACT

This report documents a study of charter schools in Alberta, Canada. The purpose of the study was to examine the academic achievement of the 10 charter schools in the province. Data were collected from test scores in language arts, math, science, and social studies of third-, sixth-, and ninth-graders; reviews of various documents; and interviews with administrators at each school. Following are some of the key findings: Overall, students in most of the schools appeared to be performing very well on standardized achievement tests. The majority of students scored above the provincial average in all tested subjects at all grade levels. All the charter schools in the study had adopted or developed ways of measuring progress or achievement other than the provincial achievement tests. As centers of innovation, charters schools have been very successful. The report makes, among others, the following recommendations: Charter schools should use systemic assessments separate from the provincial achievement tests. Structures must be put in place whereby information regarding the practices and innovations being used in the charter schools are shared systematically with the public, separate school systems, and the general community. (Contains 43 tables and 148 figures.) (WFA)

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Achievement in Alberta's Charter Schools

A longitudinal study

by
José da Costa
Frank Peters
with Claudio Violato

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The Society is an independent non-profit Canadian education research agency founded in 1996. Our mission is to encourage excellence in public education through the provision of rigorous, non-partisan and arm's-length research on school change and quality issues. SAEE is particularly interested in research that may shed insight on innovative school practices and policies leading to successful learning outcomes. With generous assistance from eight Canadian foundations, SAEE has commissioned 14 research studies on schooling practices. SAEE is a registered Canadian charity and may provide official tax receipts for donations to its research work.

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Foreword

The study of Achievement in Alberta's Charter Schools was initiated in the summer of 2000, under the auspices of the Society for the Advancement of Excellence in Education. The study was supported by means of a grant from the Max Bell Foundation.

Charter schools have emerged in Alberta within the past decade, as part of the massive restructurings that were implemented in the mid-1990s. Up to now Alberta is the only province in Canada in which legislation enabling charter schools is to be found. There is clearly an interest in knowing how well charter schools are performing in relation to other publicly funded schools, given that some of these schools have, at the time of the completion of this study, been in operation for six years.

The particular objectives of the study were provided by the Society for the Advancement for Excellence in Education. The report addresses these objectives and, where possible, provides answers to the questions raised. In other cases, we indicate the difficulties associated with conducting a study of this nature with schools that have unique mandates and, in many cases, comparatively small enrolments.

During the conduct of the study we received wonderful assistance from those working in all of the charter schools. They provided us with the requested documents if available, and with time out of their busy schedules for our interviews and follow-up phone calls when needed. We found ourselves, not infrequently, in need of assistance and explanation as we tried to interpret as precisely as possible the data available on-line relating to the Provincial Achievement Tests. In this we received generous cooperation from many people at Alberta Learning. We would like to thank Dr. Claudio Violato, of the University of Calgary, for his substantial work, incorporated into our report, relating to Effect Size, and for providing us with the comparisons of the Raw Score Means relating to each charter school.

In many cases the data seem to speak for themselves and commentary might appear to be superfluous. However, the data need to be interpreted carefully, and the nature of the comparisons being made must be considered. With that in mind, it is our hope that this report provides insights into the performance of students in Alberta's charter schools on the Provincial Achievement Tests from 1997 to 2001 and other measures of achievement. We have certainly been enriched by the viewpoints we have been invited to share, and are thankful for having been made privy to so many exciting, challenging and hopeful stories as we carried out this research.

José da Costa
Frank Peters

Acknowledgements

Grateful appreciation is extended to all those who contributed to this research over the past two years. Special thanks goes to the charter schools and their administrators and superintendents, and to Alberta Learning officials. We gratefully acknowledge the contributions of the members of the advisory committee who provided helpful feedback at various stages of the research: Lynn Bosetti, Bryna Clarke, Dwight Harley, Graham Kelsey, Debra King, Tom Maguire, Stephen Mitchell, and Marc Prefontaine. Finally, we express sincere thanks to Max Bell Foundation for the provision of a grant for this research, and to SAEE for commissioning this work.

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EXECUTIVE SUMMARY

Charter schools are alternative public schools operating on renewable performance-based contracts. Alberta is the only Canadian province with legislation enabling such schools. This two-year study addresses the question: "How successful are Alberta's charter schools in improving student achievement?" The research was conducted by University of Alberta professors, Frank Peters and Jose da Costa, with statistical assistance from Claudio Violato at the University of Calgary.

Background

Alberta introduced charter school legislation in 1994 with the stated intent of improving student learning through innovations in the organization and delivery of education within established guidelines. While the legislation permits as many as 15 charter schools, there have never been more than 11 operating at any one time, enrolling approximately 4,000 students. (In contrast, the United States has 2,700 charter schools serving over 570,000 students.)

Alberta's charter schools may not charge tuition fees, must be accessible to all students within the parameters of the school's charter, and must be non-sectarian. They must hire certificated teachers, follow the Alberta curriculum, and conduct provincial exams. As each school has a unique mandate or charter, there is considerable operational variation to be found across schools.

Research Objectives

Earlier research (Bosetti et al., 1998, 2000) documented the development and operation of Alberta's charter schools, as well as related policy issues. The present study was commissioned by the Society for the Advancement of Excellence in Education to examine their achievement. It included the following research objectives:

- to compare the achievement of the 10 charter schools to the results obtained by the students in the local district and the province on the provincial testing measures;
- to compare the longitudinal data for each school on the provincial testing measures to the local district and the province;
- to compare the scores of "same cohorts" of students (e.g., relative positions in Gr. 3 and Gr. 6) to the province and local district scores to examine school effects;
- to report on other outcomes related to student achievement not measured by the provincial tests;

- to compare the achievement of students in charter schools with other schools offering similar types of programs for similar groups of students.

Methods

The objectives were addressed using achievement data obtained from Alberta Learning, document review, and interviews with senior administrators at each charter school. School effect sizes were derived through calculating cohort rates of progress and applying Cohen's d scale of effect size.

A number of factors, including the small sample sizes in some cases, should be kept in mind as one examines the findings. The comparisons were between a single charter school, with a specific educational mandate and focus, and the mean scores from either the entire province or large school jurisdictions. As not all charter schools are academically oriented, it is inappropriate in some cases to measure their effectiveness by their scores on provincial achievement tests. The school effect size calculations were largely based on cohorts which could not be confirmed as identical in make-up across the three years, due to limitations in the data available. The study was unable to accomplish the final objective to compare student achievement in charter schools with schools offering similar programs.

Findings

Analysis of the data collected in this study produced six key findings on achievement:

1) Overall, the students in most of the charter schools appear to be performing very well on the standardized provincial achievement tests.

2) The children attending the majority of the charter schools scored above the provincial average in all tested subjects at all grade levels. Furthermore, more of them surpassed the provincially-set benchmarks than their counterparts in the adjoining systems.

3) Where cohort comparisons could be made in eight schools they show that, in general, students in all save one charter school have experienced growth equal to or greater than that experienced by students in the province as a whole or in the schools of the local jurisdictions. It is our judgement, however, that cohort analysis in these schools is premature, given the instability of the enrolment in the early years and given the small number of students that constitute a true cohort over any three-year span.

4) The changes in the effect size calculations found in the charter schools generally indicate that there has been a positive growth from 1997 to 2000 and from 1998 to 2001. The size of the overall positive educational effects varies from quite small in some cases to very large in others. There are, of course, a number of situations where the effects observed were negative.

5) Comparisons of effect size between charter and non-charter schools should be done with considerable caution. Generally, the population of students in non-charter schools is less homogeneous on some of the critical educational variables than in the charter schools. One can, for example, assume a very high parental support and involvement in the charter schools, a factor which research demonstrates contributes significantly to educational achievement.

6) All the charter schools in the study have adopted or developed ways of measuring progress or achievement other than the provincial achievement tests. These are varied and in many cases designed to reflect the school's particular focus and objectives. However, they may not always be collected consistently over time in ways that would facilitate systematic review and decision making.

7) As centres of innovation, charter schools have been very successful in this province. Public and separate school jurisdictions need to pay close attention to the niches these schools occupy and determine how they might better address the needs these of these sectors.

Recommendations

Based on these findings, the authors make a number of recommendations for policy, practice, and further study, including:

1. The collection and communication of data on important non-standardized measures of student growth and achievement.

   Alternative schools such as charter schools may find that their unique learning goals and special student populations require systematic assessment, separate from the provincial achievement tests. These schools will best be able to demonstrate their effectiveness if they gather and store these data in a manner that can be easily reported and shared.

2. The widespread sharing of successful practices.

   Structures must be put in place whereby information regarding the practices and innovations being used in the charter schools are shared systematically with the public and separate school systems and with the general community.

3. Value-added analysis based on individual student progress over time.

   Data management systems should allow for the tracking of individual student progress over time, with appropriate confidentiality safeguards. Development of this capacity will enable charter schools to provide a more comprehensive and longitudinal picture of student achievement. It will also make it possible to identify sectors within other schools that offer programs similar to a charter school focus and permit comparisons

of outcomes. It will be essential to factor in socioeconomic data for the students to develop well-matched samples for comparison purposes.

4. Examination of the ripple effects of charter schools on system performance.

   The effects of charter schools, if any, on practices in public and separate schools, a purpose set by the Alberta government when first introducing charter schools, should be studied.

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CHAPTER 1. Introduction

BACKGROUND

On January 18, 1994 the then Minister of Education in Alberta, Halvar Jonson, informed the public of that province's intent to introduce legislation to "allow for Charter Schools, with the subsequent implementation of several pilot projects. Charter Schools are schools that can operate with more flexibility and autonomy in achieving results."[1] A month later another government document stated that a number of charter schools would be piloted to "allow the development of innovative alternatives within the public system."[2] It was anticipated that charter schools would "improve student learning through innovations in the organization and delivery of education within established guidelines."[3] More specifically, as public schools, charter schools in Alberta cannot charge tuition fees, are to be accessible to all students within the parameters of the school's specific charter, and must be non-sectarian. They must hire certificated teachers and follow the Alberta Learning program of studies and conduct provincial exams.

Despite hopes that there would be some charter schools operating by September 1994, it wasn't until a year later that the first school actually took in students. While the legislation permits as many as 15 charter schools in Alberta, there have never been more than 11 operating at any one time. During the 2001-2002 school year the number of charter schools in the province stood at 10. Eight of the 10 are located in either the Edmonton or Calgary areas with one each in Fort McMurray and Medicine Hat.

Each charter school has a unique mandate, mission, or charter. Consequently, as authors such as Bulkley (1998), Garn (1998), Murphy and Dunn Shiffman (2002) and Wells, Lopez, et al. (1999) point out, it is extremely difficult to speak meaningfully of a "charter school movement." Charter schools are individual in their purposes and in their ideologies and there is considerable variation in the pedagogical orientations and practices observed within them. They appeal to parents and students with different interests and preferences. They draw students from different backgrounds and with different aspirations and they employ different structures and methods in their operation.

While the context for Canadian charter schools is simpler than that in the United States, in that there is only a single provincial statute and legislative framework under which they all operate, nonetheless there is considerable charter and operational variation to be found in

1. Government of Alberta News Release, Jan. 18, 1994. Edmonton
2. Peters, Frank & Arruda, Arthur (1998). "Charter Schools in Alberta: Alternative Forms of Excellence".
3. Ibid.

any examination of the charter schools in Alberta. It is obvious that in Alberta, as elsewhere, when we examine the charter school phenomenon, we find that "what exists is a set of different schools, and not some monolith known as charter schools."[4]

THE STUDY

The study being reported here was conducted on behalf of the *Society for the Advancement of Excellence in Education* and was carried out over a two-year period. It had six specific objectives:

- to compare the achievement of the 10 charter schools in Alberta to the results obtained by the students in the local district and the province on the provincial testing measures;
- to compare the longitudinal data for each school to the local district data and the provincial data, on the provincial testing measures;
- to compare the scores of *same cohorts* of students (e.g. relative positions in gr. 3 and gr. 6), to the province and local district scores;
- to calculate the loss or gain, identified on the test results, in each of the charter schools;
- to report on other measurable outcomes related to achievement not measured by the provincial tests.
- to compare the achievement of students in charter schools specifically with other schools offering similar types of programs for similar groups of students.

Given the earlier comments regarding the uniqueness of each charter school we feel it is appropriate to present the story of each of the institutions separately. Each story is told so as to best address the particular purposes of the study. Extensive use is made of charts and graphs as this facilitates more graphic representations of changes, trends and comparisons than text alone.

METHOD

A number of different research methods were used in this study, both to collect and analyze the data pertaining to each school. The methods were both qualitative and quantitative in their orientations, complement one another effectively, and increase the comprehensiveness and the trustworthiness of the findings at which we arrive.

Interviews were held with administrators from all charter schools. In all cases except one, CAPE, the interviews were held on site. Due to difficulties beyond our control it was necessary to conduct a telephone interview with the principal and superintendent of this school. The interviews permitted us to explain the purposes of the study, elicit and obtain assistance and cooperation, obtain invaluable insights into the operation and challenges facing the schools, and provide assurances regarding confidentiality of data where appropriate, and regarding other aspects pertaining to the preparation of the final report. Interviews lasted

4. Rosenblum, Brigham, & Associates, *Innovation and Massachusett's Charter Schools*, 1998, 6.

between 90 minutes and three hours and in all cases they were tape-recorded, with the approval of administrators.

To address the specific research questions posed for the study, analyses of provincial achievement test data collected from 1997 to 2001 were conducted in a number of ways. All of the data relating to results on achievement tests were obtained from the Alberta Learning website.

The first set of data enabled us to determine the percentage of students in each of the charter schools who reached the *Standard of Excellence* and *Acceptable Standard* in the specified grades and subjects, for those years in which the school was in operation.[5] It was also possible to compare these data to the local district averages and to the provincial averages. In Grades 3, 6 and 9 students write achievement tests in Mathematics and Language Arts. In Grades 6 and 9 they also write tests in Science and Social Studies. Comparisons are made, where possible, in relation to these subjects at these grade levels.

A second set of comparisons allowed us to compare the charter school to local district averages and provincial averages, on the basis of raw scores obtained on the provincial achievement tests. All of these data were also used to identify the patterns of performance over the years of the charter schools' operation and to compare the longitudinal results for each charter school with the results from the local jurisdictions and the province.

The raw score means for each group of students was used to determine and report the *effect size* (ES) statistics, using what is referred to as Cohen's *d*, for each of the charter schools. The ES statistic is arrived at by comparing the results on given tests from control groups and experimental groups. ES is calculated by obtaining the mean score from the control group and subtracting it from the mean score obtained by the experimental group and dividing the result by the standard deviation of the control group (i.e., an estimate of the standard deviation in the population). In this study, because we have the actual standard deviations for the comparison populations, we used those figures instead for the denominator in the effect size equation. While not a particularly new statistical calculation, these statistics are being used more frequently in recent years as researchers attempt to more comprehensively describe the factors affecting student performance. The most typical and easily understood ES statistic is the standardized mean difference, of which Cohen's *d* is an example.

5. A footnote to the data tables provided by Alberta Learning informs the reader that , "For these tests, at least 85% of students are expected to meet the *Acceptable Standard* and at least 15% are expected to meet the *Standard of Excellence*."

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Interpreting Cohen's d.

Cohen's *d*, in this study, relies on determining the differences between two groups (i.e., each charter school and its local jurisdictions or the province) based on standard deviation units. Cohen's *d* is given by the following equation:

$$Cohen's\ d = \frac{\bar{X}_1 - \bar{X}_2}{SD_{population}}$$

where

$\bar{X}_1$ = mean for the individual charter school

$\bar{X}_2$ = mean for the local jurisdiction or the province, depending on the comparison

$SD_{population}$ = Standard Deviation of the provincial population

Cohen (1988, 1994) and many other educational researchers (e.g., Glass, McGaw, & Smith, 1981; Hattie, 1992; Hattie, Biggs, & Purdie, 1996) have suggested that specific values be used to represent "small," "medium," and "large" effect sizes in social sciences and educational research. Effect size conventions are as follows:

small: ES ≤ 0.25

medium: ES = 0.26 to 0.55

large: ES ≥ 0.56

The ES should represent the smallest effect that is of practical or educational significance. The suggested values, provided above, for "small," "medium," and "large" ES can be used as a reality-check for the researcher or policy analyst attempting to interpret and make sense of the numbers.

These analyses add to the composite picture of each charter school, and provide us with further elements that can be included in the meta-narrative being created regarding Alberta's charter schools and whose beginnings are found in Bosetti, O'Reilly, Sande, & Foulkes (2000). [6]

Value-Added Analysis

A third set of comparisons focus on what the charter schools enable their students to gain or lose over a three-year period spanning either Grades 3 and 6 or Grades 6 and 9. These so-called *value-added* analyses are premised on following a cohort of students from one battery of provincial achievement tests to the next three years later. We recognize the problems associated with assuming that the same children are present for each pair of comparisons; consequently, the results of these analyses must be viewed very cautiously.

Operationally, the process involved calculating the difference between the ES in language arts and in mathematics at the Grade 3 level – for data collected in 1997 and 1998 – and then the Grade 6 level – for data collected from the same "cohort" in 2000 and 2001 respec-

6. Bosetti, B.L. et al., *Canadian Charter Schools at the Crossroads* (Kelowna, SAEE, 2000).

tively – to determine the direction (positive or negative) and the magnitude of the difference. The same process was used to calculate the differences in ES in language arts, mathematics, science, and social studies at the Grade 6 level (1997 and 1998 test results) and then at the Grade 9 level (2000 and 2001 data respectively).

This value-added analysis uses the provincial average as a baseline for comparison of the charter school performance in each subject area over a period of three years. In other words, a school netting a value-added component of "0" will have performed at par with the provincial average.

Finally, to present a more complete picture of achievement, the researchers also attempted to gather available evidence concerning other forms of student growth and success in the charter schools. This information was largely gathered from the visits, interviews with the schools, and the documents provided.

INTERPRETATIONS AND LIMITATIONS

There are a number of cautions that should be attended to as the figures are examined. In the first case, in many of the classes in the charter schools the actual number of students writing (or eligible to write) the provincial achievement tests was extremely small. While we are able to report the percentages attaining the particular benchmarks, and the mean scores in relation to the raw scores, we should be aware that the percentages and the means could be changed very substantially with the addition or subtraction of one or two students from the class.

Firstly, Alberta Learning has not reported any achievement test results for The Boyle Street Education Centre, hence the absence of possibilities for comparisons on these measures. In a number of other cases, the number of students taking a particular test fell below the minimum required before the results are published (in order to protect the confidentiality of the students).

Secondly, while the benchmark figures tell us about the percentages of students in each school (or jurisdiction or in the province) meeting the particular benchmarks, they do not tell us what specific marks were obtained by the students in these schools. We are unaware whether students scored well above the benchmark or just slightly above. Conversely it might be that a notable percentage of students in a particular school scored below a particular benchmark, but we are not able to determine, from these data, how close these students are to reaching that benchmark. Such information is obviously of importance to the teachers and administrators. To address this need, we have also provided comparisons using raw data from the schools, local jurisdictions, and the province.

Thirdly, Alberta Learning provides a warning regarding the interpretation of the results on the Mathematics tests. In a footnote we are told "For 1997/98 the standards for the new mathematics curriculum were established using standard-setting procedures. The percentages of students meeting standards in 1997/98 and 1998/99 should not be compared to 1995/96 and 1996/97." We assume that this also applies to the results we report for 2000 and 2001.

Fourthly, it should be pointed out that we are aware of the serious limitations associated with the *value-added* analyses that we have conducted. This analysis is based on an assumption that the two comparison groups of students, in Grade 3 and Grade 6, or in Grade 6 and Grade 9, are the same groups of students, or the same cohort. We know that this is not the case and this is a serious limitation on our ability to assume that the value-added dimension of our findings can be attributed to the interventions within the particular charter school. This uncertainty can be exacerbated when the numbers of students in these groups are comparatively small, as they tend to be in almost all the charter schools, because small changes in the membership of the groups will exercise significant influence on the aggregated statistics. (the size of charter school cohorts in 1997/2000 and 1998/2001 writing provincial achievement tests were all smaller than 24 students).

Finally, it would be inappropriate to merely provide these charts and comparisons without drawing attention to the particular charters under which the different charter schools were established. These charters have unique features that inevitably lead to the attraction of a particular student and parent clientèle. This realization should be remembered when examining the achievement test scores.

OVERVIEW OF THE REPORT

Following the introduction to the objectives of this research contained in Chapter 1, the report essentially consists of ten stories, one for each of the charter schools included in the study, with some fuller than others. The school narratives are viewed through a different prism in each chapter, as the various objectives are addressed. Within each chapter, the individual schools are presented in alphabetical order, concluding with a summary analysis where appropriate.

Chapter 2 provides the reader with a brief descriptive profile of each charter school. As earlier research by Bosetti et al. (1998 [7], 2000 [8]) offers extensive documentation on their charters, history, and operations, the thumbnail sketches of the schools presented in Chapter 2 are deliberately brief. In Chapter 3, the longitudinal data relating to provincial achievement tests are presented for each school. Here we examine the percentage of students meeting the *Acceptable Standard* and *Standard of Excellence*, comparisons with the province and the local districts on these benchmarks.

Chapter 4 addresses the relative progress over time created by each school for cohort groups (with some very serious and acknowledged limitations). These data are translated into achievement effect sizes attributed to each charter school, which are compared in turn to average effect size results from the jurisdictions and the province. And because the education community understands student success as broader than standardized test scores, Chapter 5 presents some of the other indicators of student growth and progress tracked by each school. Finally, Chapter 6 offers conclusions and implications of the findings for practice, policy, and further study.

7. Bosetti, B.L. et al., *Canada's Charter Schools: Initial Report* (Kelowna, SAEE, 1998).
8. Bosetti, B.L. et al, *Canada's Charter Schools at the Crossroads* (Kelowna, SAEE, 2000).

CHAPTER 2. School Profiles

In this chapter a brief portrait of the ten charter schools in the study is provided, developed from interviews with school officials, and examination of school documents. It is important to remember that the operation and mission of each school is shaped and bound by the specific nature of its founding charter. The quotations were derived from interviews or documents.

ABC CHARTER SCHOOL

The ABC Charter School[1] began operations in 1996, having received its charter approval from the Calgary Board of Education the previous year. The school is operated by the Action for Bright Children (Calgary) Society. During its first year of operation its enrolment reached 116 students with a teaching staff of 7. The school offered Grades 1 to 3 and continued to offer these same grades the following year. For the 1998-99 year they expanded to Grade 5 and have added an extra grade in each of the subsequent school years, so that presently the school offers classes from K to 8. In the year of the study (2001-2002) the school operates three Kindergarten classes, four classes each for Grades 1 to 5, three Grade 6 classes, and two classes each for Grades 7 and 8. The overall enrolment is approximately 600 students and there is a waiting list. Classes are capped at 22 and the average class size is approximately 20 students. This is the third building that the school has occupied and both previous moves were brought about by demands for extra class spaces. The Charter for the school is built on the belief that "each gifted student is afforded opportunities to optimize his or her potential."

The administrators report that they have no need to advertise widely and that parents tend to be their strongest referral sources. It was mentioned that the school does use a screening test, the C-CAT, in order to ensure that prospective students are capable of availing of the enriched program that the school provides. Particular attention is paid to the non-verbal dimension of this test, in that this is where cognitive ability is mostly measured. As giftedness is not necessarily just cognitive, the school is developing tools to help teachers collect information on the multiple intelligences of each student. It was pointed out that this is, in a way, one of the foundational pillars of the school. It was also emphasized that a student's profile may change from time to time depending on changing interests. During the years in which the students do not write the provincial achievement tests, they are tested using the CAMP (Curriculum Assessment Materials Package), provided through Alberta Learning. The school is also using STAR materials but it was drawn to our attention that there is a

1. In late 2002, the name of the school was changed to Westmount Charter School.

need to find alternative measuring tools because too many of the students in the junior high school grades are "already hitting the ceilings of the current tests."

The operations in the school are "kid-driven; not kid-controlled, but kid-driven", in terms of the students taking hold of particular topics and becoming immersed in the learning process. It was stressed that the environment "was very organic, so you see kids in the hallways, kids working in teams, and kids doing presentations." Learning is intended to be fun as well as challenging.

The prescribed curriculum is compacted into 60% of the required time. The remaining 40% is devoted to integrated studies and supported directed studies. This allows both teachers and students to work in their passion areas. Teachers are seen as facilitators, directors, and guides of the students' learning. In the junior high school classes, considerable attention is paid to the Supported Directed Studies (SDS) component of the curriculum. "Here we expect the child to create his/her learning instead of just receiving it and turning it back to us."

It was pointed out that there has been considerable frustration with the provincial achievement tests. In a sense the staff feel that the tests require a certain dumbing down on the part of the students and they need to be explicitly taught how to address the tests. It was mentioned that "our kids think too hard", and so they are likely to take matters far beyond where the correct answer will require them to go. They want to tell everything that they know about a topic rather than the specific raised by the question. The more creative students have considerable difficulty working within the parameters set for the writing exams. They become engrossed in the character development and find it difficult to predict how the story will evolve. The preparation of an outline is frustrating to them because it flies in the face of the creativity that has been nurtured by the teachers. In practice, for the purposes of the tests, the students are taught to work with particular formulae. Nonetheless, it was pointed out that efforts must be made to ensure that some of the brighter students don't show their objections to the process by just engaging in sabotage, for example by merely writing their names on the tests and nothing else.

It was also mentioned that many of the students work well above the grade level in which they must write the tests. A Grade 6 student might well be working in Math at the Grade 9 level and in Language Arts at the Grade 8 level (the school refers to the language arts, etc. program in the junior high school as Humanities). However, that student would write all the Grade 6 departmental exams.

The entire school is networked. Every classroom has a number of computers and students make considerable use of this technology.

It was pointed out that there is considerable cooperation with teachers and schools within the Calgary Board of Education. Generally, teachers work individually but there is a lot of team work between classes at the same grade level. Teachers team up to work through a particular unit and then re-configure when another unit begins.

The school draws students from across the city of Calgary. ABC Charter School offers its students a challenging program and if it appears that a student will not be able to cope based on previous performance, parents will be encouraged to take the student elsewhere. In general, students are not turned away if there is room. The intensity of the program is emphasized, however, and "sometimes we counsel against enrolment before they even come." It was pointed out that there is a sibling policy in effect which means that if one child of a family is in the school then other siblings will be accepted if there is room. The drop-out rate is about "1%-2% and it tends to happen sooner rather than later." The circular nature of the entire experience was referred to: "They're enjoying themselves and they're happy because they're achieving academically and if they're not achieving academically they're not going to be enjoying themselves or happy."

The school retains a very high proportion of staff from year to year and enjoys considerable satisfaction among the staff. "We can't get rid of them", we were told. It was emphasized that teachers are given considerable freedom and trust and autonomy in their classrooms. They are expected to "break the boundaries of what would be the traditional delivery modes and create new models of instruction that work for their students." It was mentioned that there was considerable variation among the staff of the school, with a notable mix of "quirkiness and conservatism."

One staff member indicated that the students at this school "know what makes one another tick", and really know one another at a deep level. There is a strong sense of community among the students, who are required to respect the uniqueness of each of their colleagues. Many find that this is the first environment in which they don't feel particularly strange because they are surrounded by others who are equally unique. We were given examples of students who argued seriously about negative and positive infinity and of one who had an intense and peculiar friendship with his calculator. These, and all the students, we were told, feel secure in this school. "We're a safe place for these kids", and, it was mentioned, for many of the adults as well, some of whom might have left the teaching profession had they not found this opportunity. "We're creating a haven for kids" who might not fit in easily in regular schools. Many of the more gifted children bring huge socio-emotional and psychological challenges with them to school. Some children need medical assistance in order to be able to function effectively but the entire school community is one that emphasizes caring and provides the support that each unique student requires.

ALMADINA CHARTER SCHOOL

The Almadina Charter School began operation in 1996 and operates classes from K to Grade 9. Located in a building leased from the Calgary Board of Education, the school has a student enrolment in 2001-2002 of approximately 320 students. In the fall of 2001 the school took over a bungalow on the school grounds, permitting the school to expand slightly. The mission of the school is to provide educational services to students working with English as a second language.

The school has had a fair amount of instability during its years of operation, and though it has had its charter extended for three years, beginning in 2001, it is being monitored rather rigorously. The current principal is the sixth since the school opened, and he has been at Almadina since the beginning of the 2000-2001 school year. That year also saw the arrival of a new superintendent. The letter from the Minister of Education approving the Charter extension, stipulated that the school board would have to be more careful to leave the administration of the school to the superintendent and principal.

The enrolment in the school has increased slightly each of the past three years, up from about 280 in 1999, about 305 in 2000, to 324 during the 2001-2002 school year. The school has 24 certificated teachers, including a principal, a vice-principal, and a half-time counselor, whose salary is paid through an *Alberta Initiative for School Improvement* (AISI) grant. Approximately two-thirds of the staff have had some specific ESL training, while about 20%-25% possess a minor or a major specialization in that area.

The student population of Almadina Charter School is largely Arabic speaking. Approximately 40% of the students have arrived in Canada within the past five years, creating some tensions between the more established immigrants and the more recent arrivals. Approximately 95% of the students are Muslim and approximately 75% are Arabic. While the majority of students have Arabic as their first language, there are small numbers of African or Asian students and there is a danger that these students can be lost or feel isolated. The school implemented an initiative called *Second Step* in January of 2001. This is a social skills program, aimed primarily at violence prevention but incorporating a range of other areas as well.

Arabic is used at times as a language of instruction at Almadina. It was pointed out to us that as part of the ESL philosophy, there is a belief that, "if students develop or increase their skills in their first language, they are going to be able to pick up their second language more easily. If you strengthen the skills in the L1, which is Arabic, they'll be able to develop or apply a lot of those skills to L2 [English]. And a lot of our students do not have a very strong Arabic language background."

As many of the students have a very poor understanding of grammar and other language rules, the school provides three such classes a week for students, starting from Grade 1. Beginning at Grade 4, the school provides the option to students to take three classes per week of French or Arabic. It has been found that the demand for Arabic continues beyond Grade 4, although some students opt for French at the junior high school level.

At present the school operates two classes at each grade level, with some modifications at junior high school. It was mentioned that it is impossible to do ESL instruction effectively while maintaining regular class sizes. Elementary classes have about 17 students, with slightly lower numbers at the junior high school level. While it would be possible to take more students in many of the classes, the numbers were kept down deliberately compared to the class sizes in regular public schools.

Given the nature of the student population, the administrators are not surprised at the relatively low scores on the provincial achievement tests. We were reminded that in many of the homes the students are not only not encouraged to speak or study English, but they are not allowed to do so. The school's focus on ESL is somewhat different from the Calgary Islamic School where the students are provided with a climate that is deliberately intended to support the dimensions of their Islamic culture and religion. Many of the parents, however, expect Almadina to be able to present the very same type of climate and setting without cost that the Islamic private school charges fees to provide. It was mentioned that there is a deliberate strategy of improving the cooperation and collaboration with all parents in the school.

Similarly, there is a growing relationship with those working in ESL at the Calgary Board of Education (CBE). It was pointed out that some staff members would participate in upcoming workshops organized by the public board. As well, teachers at the school would be able to participate in specific university courses sponsored through the CBE that had formerly been unavailable to them. The principal indicated that he hoped to be able to establish similar working relationships with those in the ESL area in the Calgary Catholic School System.

AURORA CHARTER SCHOOL

The Aurora Charter School received its charter in 1996 and opened its doors to students in the fall of the same year. Located on the Misericordia Hospital grounds in West Edmonton, the school draws its student population from across the entire city of Edmonton, although the vast majority of students live on the west side of the city. Aurora Charter School is focused on providing a structured, orderly, teacher-directed classroom environment to average children so they may excel "in an academically-oriented programme."[2]

Aurora Charter School operates from a base of seven criteria ascribed to effective schools (e.g., Chubb & Moe, 1990), namely:

1. Clear and quantifiable school goals.
2. Rigorous academic standards.
3. High expectations for student achievement.
4. Order and discipline.
5. Regular homework.
6. Parental support and co-operation.
7. Administrators and staff who believe in and support the first six criteria.[3]

Further to criterion seven, it is clear that parents sending their children to Aurora Charter School must also believe in and support all of the criteria described above. This blend of parental and school support for student programming provides children with the opportunities to develop their potential fully.[4]

2. Aurora School Ltd., 1996, 7.
3. Ibid, 8.
4. Ibid, 8.

Enrolment at Aurora Charter school during the 2001/02 school year was 383 on the September 30th Alberta Learning funding count date. During the past academic year the school offered programming to students from Kindergarten to Grade 9. Class size during 2001-2002 averaged approximately 22. During the 2001-2002 school year, the school employed 27 teachers, 2 support-staff, and a full-time principal.

In addition to the Alberta mandated academic curriculum, Aurora Charter School offers art, music, and physical education to all students. French is offered to all students beginning in Grade 2. Students with "mental or learning disabilities" are encouraged to attend school in one of the larger jurisdictions where they can receive the specialized assistance they need.

BOYLE STREET EDUCATION CENTRE

The Boyle Street Education Centre is situated on the northern edge of Edmonton's city centre. The school has been in operation since the early 1990s as a private school. In 1995 the Boyle Street Service Society filed application for charter school status. This organization is also responsible for the Boyle Street Community Services Co-operative Ltd., a non-profit organization whose efforts focus on coordinating many government and non-profit agencies (e.g., youth workers, Streetworks nursing staff, housing registry, mental health unit, family services, Fresh Start addictions recovery support group) for the benefit of those experiencing difficulty in the mainstream.

The school serves students throughout the city who are unable to cope in the regular school setting. The Boyle Street Education Centre "...offers programs that re-engage at-risk/out-of-school youth in the learning process and provides each student an opportunity for successful attainment of the learning expectations, as established by Alberta Learning."[5] Recently, because of legislative changes, the Boyle Street Education Centre has become its own corporation.

Educational programming at the school is provided for teens aged 14 to 19. The only prerequisite for attendance at the Boyle Street Education Centre is that the at-risk student desires to re-enter the public education system. The demographics of students attending the Boyle Street Education Centre are very different from any other school in the province of Alberta. During the 2000/01 school year, the majority of students ranged from age 16 to 19 (with a mean of approximately 17). Just over 80% of the students attending the school were of Aboriginal background. Almost three-quarters of the students in attendance reported living with only one parent or no parents, many indicated that they lived on their own. Over 60% reported being apprehended by the police for criminal activity. Just over 25% indicated that the police had apprehended them many times for engaging in criminal activity. Approximately half of the students in attendance at the school were coded as having a moderate or severe emotional/behavioural disability.

The school's enrolment was originally expected to be 75 students, with a maximum enrolment of 100. Since opening in 1995, enrolment has consistently been in the 70 to 75 range on September 30th of the school year when Alberta Learning funding counts are performed.

5. Boyle Street Education Centre Annual Education Results Report. 2001, 1.

This number can be very misleading, however, because the school has continuous intake throughout the school year, with students being placed into one of four "homerooms." Enrolments typically bulge to approximately 100 just before the Christmas break.

Because all students have individualized education programs, all grade levels are represented in the school as dictated by students' learning needs and deficits. Of the 18 staff working at the Boyle Street Education Centre in the 2001/02 school year, 11 were teachers; the others included teacher aides, a psychologist, a counselor, an administrative assistant, a custodian, and the full-time principal. A high teacher to student ratio (approximately 1:8) is maintained at the school in order to provide students with the individual attention they require to be successful.

The primary focus of the school is to modify inappropriate student behaviour and reinforce appropriate behaviour. Behaviours such as student attendance and following school rules are closely monitored. This focus is accomplished in a safe, caring, respectful environment based on the following seven principles:

1. Expectations of citizenship and responsible behaviour are the norm.
2. Individual differences are respected.
3. Self-worth and personal dignity are nurtured.
4. Further learning is fostered.
5. An attitude of hope is cultured.
6. The setting must be culturally responsive and inclusive.
7. Student directed learning is supported.

The Alberta Learning credit courses offered to students through individualized program plans at the Boyle Street Education Centre include:

1. English.
2. Math.
3. Science.
4. Social Studies.
5. Art.
6. Native Studies.
7. Physical Education.
8. Career and Life Management (through the use of Talking Circles).
9. Career and Technology Studies (e.g., cosmetology, fashion studies, foods, wildlife, computers).
10. Work Experience program.
11. Registered Apprenticeship Program.

Quantitative analyses are inappropriate for the Boyle Street Education Centre for several reasons. First, insufficient numbers of students write the Grade 9 provincial achievement

tests in order to make any comparisons meaningful. In fact, Alberta Learning does not provide any such data for the same reason. Second, even if there were sufficient numbers of students writing the provincial achievement tests, it would be inappropriate to compare the results of students who were unable to cope in conventional school settings, and had withdrawn from those settings, to students in regular school programs. The fact that students are returning to school and in many cases completing the requirements for high school graduation testifies to the educational success of Boyle Street Education Centre.

CAPE CHARTER SCHOOL

The Centre for Academic and Personal Excellence (CAPE) Charter School is located in Medicine Hat and began classes in 1995 with approximately 75 students. The philosophy of CAPE, on which its operations are based, is "to foster a desire to learn, to grow, to explore, to excel, to achieve." So far the Charter has been renewed twice and the current mandate will be up for re-examination in 2005. The school offers programs for "students who are at-risk, students for whom the previous school setting proved unsuccessful." In their former schools these youngsters were "unproductive, ended up in trouble, or there were disciplinary or other issues." It was suggested to us that between 40 and 45 percent of the students were very talented or even gifted, but had become disciplinary problems for one reason or another and "had fallen behind academically and their productivity has been close to nil." About the same percentage would have been diagnosed with either medical or learning problems and they fell behind academically and were working below grade level when they came to CAPE.

The school was opened in 1994 as a private school and was one of the first schools in the province to receive a Charter in 1995. During its first year as a charter school there were 76 students. By the 2001-2002 school year this number had grown to 137 students in Grades 1 to 9. In the 2001-2002 school year there were 11.9 full-time equivalent teachers on staff along with 5 full time equivalent teacher assistants. The school cap on class size currently stands at 14 (plus or minus 2) at the lower elementary; 16 (plus or minus 2) at the upper elementary; and 18 (plus or minus 2) at the junior high school level. This is a deliberate policy that the school considers essential because "of the group of students to which it caters." When we asked how it was possible to maintain such a low student-teacher ratio we were told: "We do it by managing our pennies. We have a lot of extremely supportive people who fundraise until they drop, or donate in kind, or in labor, or in money, or whatever. We do it because our teachers' salaries are nowhere near, have never been near and most likely never will be anywhere near what those with the ATA[6] receive."

When we pressed a bit further, we learned that while the gap has closed a little in recent years, the average teacher in the CAPE Charter School receives about $10,000 less per annum than he or she would receive in the public or separate schools in Medicine Hat. In spite of this, it appears that most of the staff have been with the school for up to six years and there is very little turnover. "They have bought into the whole philosophy of CAPE."

6. Alberta Teachers' Association

Up to this point the school has not received funding for any severely disabled students. The one application submitted was rejected, and the school intends to re-submit this, along with two additional ones. It was pointed out that in these situations, the school provides extensive one-on-one care and education without having the financial resources to do so. As a public school, there was "open access" provided that there was room in a grade, but the parents had to clearly understand what kind of a school it was, "what we can and cannot do." It was emphasized that in the end, it was a parental decision. "If a parent feels the student would be better suited by this particular educational structure rather than another, and there's room in the class, then the child is in."

For all of the students in the school, both academic and personal challenges are attended to: "For some of our students, academic excellence means just being in school." For others it might mean "getting passing grades", while for others it might mean getting "98s or 99s and working two years above grade level." We work with a very "individualized type of excellence", so school averages on provincial achievement tests are "kind of meaningless."

For many of the students, what is most important is that there be a "move or a change in behaviours." In this school discipline is not seen as a form of punishment but rather as a "behavioural change tool; a way of modifying negative behaviours and teaching students how to make appropriate decisions, and how to solve problems."

FOUNDATIONS FOR THE FUTURE CHARTER SCHOOL

The Foundations for the Future Charter Academy (FFCA) opened in 1997. The school is intended to provide average students with a solid foundation on which they can build a successful academic career and future within a global economy. The school's charter specifically states that it will provide "a structured approach to learning whereby students acquire knowledge and skills in a systematic sequential way." [7]

At its inception the school operated in the former Baptist Leadership Training School. In the following year, it became necessary to move the earlier grades to an elementary school leased from the Calgary Separate School District. In its third year, 1999-2000, the school leased the Norman Bethune School from the Calgary Board of Education, but the following year opened a second campus and divided the entire school. In 2001-2002, Grade 4 operated at the new campus with about 500 students, while about 300 students in Grades 5 to 9 attended the Bethune campus. The two campuses operate as a single school, with integrated records and an identical philosophy. From an operational perspective, there are two principals at each site, one dealing with instructional leadership and the second handling the administration.

In our discussions it was emphasized that, "We're everybody's charter school. We are not a boutique. We are not focused on a music emphasis, we're not ESL, and we're not a science school." It was pointed out that the school is really not geared to take students within the 10% at either end of the academic spectrum. There are no special education programs, or

7. *FFCA Charter*, 2.

pull-out classes, nor are there any students for whom the school claims any special grants. We were informed that the nature of the program is explained thoroughly to parents and when an assessment is done of a child's learning threshold the parents are informed where that child will be placed. "There is no kindness or respect to a child if you place him or her where there is likely to be failure." There is an expectation that a child beginning at the school will be within a grade of the class he or she is entering.

Having heard all this, it is essential to remember that in reality "there are very few kids that don't get admitted here if they are interested and their parents really want them here." It was mentioned to us that the school currently has students who came to them from Gifted and Talented programs, from ESL programs, and who have had "coded and claimed grants in special education categories of all kinds" at their previous schools. These students, we were told, "are here, but you won't know where they are. They're just out there with the regular students."

Although the school dropout rate is quite small, some students do leave because of family transfers. The overall enrolment in the school has increased steadily each year and has now necessitated the second campus. A third campus is envisaged very soon and an expansion into senior high school also. In our interview it was pointed out that there is a waiting list of 4,400 students, across all grades, for the school. Class size is capped at 25 and all classes operate close to this number.

From a programmatic perspective, the school appears to offer an essentially "back-to-basics" delivery system. In this context it was pointed out that "the stuff that is really important is the teaching: the style of teaching and the learning resources that are used." We were told that the style of teaching that has developed, the "rubric" that has been established, "is embedded a lot in direct instruction." This is a particular pedagogical approach in which at the most extreme end the lessons would be scripted. In all cases, particular emphasis is placed on matching resources to the learning activities and to the teacher-directed instruction in the class. "The main menu is set and teachers here are expected to offer instruction in this style." There is considerable emphasis on structure within the school and it is expected that there will be no wasted time during transitions from one learning exercise to another.

In our interview we were informed that the only other school in Alberta offering a similar type of program was Aurora Charter School, and "they do not use the number of programs specifically that we do." It was pointed out that the charters and philosophies and general approaches of the two schools were quite similar, but it was claimed that there was greater programmatic variety at FFCA. "We use Writing Road to Reading, an explicit phonics program, in our primary grades. We use Open Court, which is an extension of the phonetic approach, but it starts leading us toward the Direct Instruction. We use Connecting Math Concepts which is a direct, bang-on DI program."

There are rigorous academic standards set and homework is an expectation, as is considerable parental involvement in the students' studies. Behavioral expectations are clearly set out and discipline problems are very rare at the school. "This is a school of choice, so naturally they're here because they want to be here."

There is little staff turnover at FFCA. The salary scale is similar to that of teachers with the Calgary Board of Education. There are very large numbers of applicants for teaching positions at the school when they become available.

MOBERLY HALL CHARTER SCHOOL

Moberly Hall Charter School is located in the northern Alberta community of Fort McMurray. The school applied for its charter in 1997 and admitted students in the fall of the same year. The purpose of Moberly Hall Charter School is described by its architects as "...meet[ing] the academic, social, and emotional needs of all student in a congregated setting. The program focus recognizes that all children tend to learn in different ways (learning styles) and that students themselves and teachers must recognize these styles, build on the preferred style of the student, and enhance and use remaining styles." [8]

Moberly Hall Charter School teaching staff is familiarized with the work of Kolb and Dunn and Dunn on learning styles and make use of a range of techniques and instructional strategies "identified by research and best practices as appropriate for meeting the unique learning styles of students."[9] All children are admissible to the school, providing space is available. Parents most often choose to send their children to the school because of the small class sizes and the comfortable environment provided to students. This is not to suggest a laissez faire atmosphere, as students are expected to take responsibility for their learning.

During the 2001/02 school year, Moberly Hall Charter School had 80 students from across Fort McMurray enrolled in Grades 1 to 8. The enrolment in the previous year had been very similar except there was also one child enrolled in Grade 9 at the school. Class sizes are deliberately kept quite small. One of the teachers serves as the part-time principal. The school also employs a number of teacher assistants, and a full-time administrative assistant.

Upon entry to the school, students' preferred learning styles are assessed using the Dunn and Dunn Learning Styles Inventory. Teaching staff then tailor their instructional strategies to coincide with the various learning styles presented by students. Teachers also challenge students to develop less preferred learning styles. All academic programs offered by Moberly Hall Charter School follow the prescribed Alberta Programs of Study. Furthermore, students are expected to achieve the standards set out by Alberta Learning. This is accomplished through "a combination of teacher led lessons, group work, computer instruction, individual studies, and laboratory experience." [10]

All students attending Moberly Hall Charter School engage in non-academic core-courses in fine arts (e.g., music and art), physical education, computer technology and software applications, and French as a second language. Students in fine arts courses have access to

8. *Moberly Hall Charter School Application*. 1997, 22.
9. Ibid., 22.
10. Ibid., 27.

artists, actors, dance troupes, and musicians through Keyano College in Fort McMurray. At the junior high school level, students are provided with access to Career and Technology Studies through a partnership approach with local community businesses.

NEW HORIZONS CHARTER SCHOOL

Located in Sherwood Park, a neighbouring community to the city of Edmonton, New Horizons Charter School was established by the non-profit group calling itself *Education for the Gifted Society of Strathcona County*. The school has been in operation since fall of 1995, primarily serving students who live in Strathcona County and the Greater Edmonton region. The stated aim of the New Horizons Charter School is to "enable gifted students to strive for excellence in an environment which is low-anxiety, positive and supportive of the individual."[11]

The school focuses only on providing programming for gifted children. To this end, the parent of a student wishing to have a child attend New Horizons Charter School must normally provide evidence of the child's abilities. This includes: (a) parent nomination letter, (b) a letter from the child's previous school attesting to the abilities of the child, and (c) an intelligence test (e.g., WISC, Stanford Binet, or WPPSI) administered by a registered psychologist.

The school has maintained a fairly constant student enrolment over the years, limited mainly by the size of the facility used by the school. In the 2000/01 school year, the school had an enrolment of 121 students spanning Kindergarten to Grade 9, in seven multi-grade classrooms. Class sizes ranged from 18 to 23 in the 2000/01 school year. Each class is taught by an Alberta-certified teacher. One of the teachers also serves as the part-time principal. Additionally, the school employs four teacher assistants, a full-time and a part-time secretary.

Students are pre-tested with respect to specific skills and "then grouped into smaller across-grade groups for instruction, specific to their needs."[12] At New Horizons, the staff works in various ways to deliver the Alberta curriculum in an accelerated manner. During the time freed up by this, students are enabled to pursue independent research projects, whose purpose is to develop higher level thinking skills and knowledge beyond Alberta Learning requirements.

In addition to the academic courses taught, New Horizons offers a variety of options including:

1. Fine arts workshops "with artists, actors, dance troupes, and musicians."[13]
2. Computer literacy with an emphasis on programming, keyboarding, software application usage.
3. Second language instruction in French from ECS to Grade 9.
4. Physical education.
5. Health and CALM curricula are integrated with a humanities focus.

11. *New Horizons Charter School Annual Education Results Report* 2000-01. 2001, 2.
12. *Education for the Gifted Society of Strathcona County* 1995, 7.
13. Ibid., 9.

SCIENCE ALBERTA CHARTER SCHOOL

The Science Alberta Charter School[14] opened in Calgary in the fall of 1999. It is a school "that does things differently and is out of the mainstream, and has a very young staff." The school, as its name implies, is founded in the idea of emphasizing mathematics and science across the curriculum, particularly at the upper elementary and junior high school levels. The school organizers "targeted the niche that we feel needed attention." It was emphasized that "Our initial goal is to make an impact in the teaching of math and science across the province; to make significant in-roads into pedagogical approaches in those two subjects. In a sense, then, this is a sort of lighthouse school. If you want to know how it's done you can come and visit us, and we'll be there at the conferences and doing other sorts of in-service."

The school's Charter permits operation from Grade 4 to Grade 9. Currently the school operates classes up to Grade 8, with two classes at each grade level. An attempt in the 2000-2001 school year to open up a third Grade 7 class attracted only four additional students. With parental permission, these students were amalgamated into the existing two classes. It has become apparent that considerations of expanding will focus more at the Grade 4 level rather than the junior high.

The school's Charter sets a limit of 600 students and stipulates a maximum class size of 25. The present facility is barely adequate to meet the school's needs, and negotiations have been underway with Alberta Infrastructure regarding a larger facility. It was pointed out to us that the school currently has a waiting list of over 600 students and "we're not really doing any advertising."

The school currently employs 12 teachers and a librarian who works 0.4 time. Teachers are teamed at each grade level, with one of the teachers handling math/science and the other focusing on humanities. The teachers do not team-teach but do extensive team planning, working with their students for approximately 80% of the school day. Teachers are paid the same salary as those with the Calgary Board of Education, although the benefit package is somewhat different. It was pointed out that the teachers have been very heavily involved in the development of the entire program, working collaboratively with the board and a parent group. We were told that there is immense parent and teacher satisfaction. The school and the teachers have managed to establish strong partnerships with a number of post-secondary institutions. They have a link with the math team at Mount Royal College and with the Galileo project at the University of Calgary. Discussions are continuing with engineering program staff at the Southern Alberta Institute of Technology (SAIT). They are also partnered with four schools in the Edmonton Public school system that have similar programs.

The school is organized on the "problem-based learning" model. "In problem-based learning we take a science-related problem which exists in the world." During the 2000-2001 school year, this problem was the rights of animals, while during the 2001-2002 school year two problems were selected: energy conservation and human performance. Students take these problems, identify sub-problems, and research the literature to arrive at answers. "They develop an understanding around it [the problem], come up with some conclusions,

14. In 2002 the name of Science Alberta Charter School was changed to Calgary Science Charter School.

and create an action product related to that. Then we put on what we call a Gallery of Learning. Members of the scientific community are invited to the school to form part of a panel and give feedback to the students on the work that they are doing."

The school is open to all students, although it is emphasized that there is an expectation that the student be working close to grade level. There are very few extra support services available for students who require extensive extra assistance or remedial attention.

SUZUKI CHARTER SCHOOL

The Suzuki Charter School is located in a well-established neighbourhood in east Edmonton. The school has been in operation under the auspices of The Society for Talent Education Board (STE) since 1985, when it first opened as a private school offering Kindergarten programming using the Suzuki method.15 In 1989 the STE applied to Alberta Education and received approval to create a private elementary school having its basis in the Suzuki philosophy. Applying directly to the Minister of Learning in 1995, the approval was given to operate as a charter school. In 1997 this Charter was transferred to the Suzuki Charter School Society which oversees the operation of the school and holds the Charter today.

The Suzuki method relies heavily on the parent as an adult role model to reinforce and demonstrate what a teacher has taught formally. The Suzuki approach is primarily associated with the teaching and mastery of a musical instrument. However, Suzuki himself, the founders of the STE, and later, the Suzuki Charter School Society recognized that the approach could be used for instruction in any skill or knowledge area, including the various Alberta curricula. Of course, an expectation of all students attending the Suzuki Charter School is that they develop competence in a musical instrument.

When the Suzuki Charter School first opened in 1995 it had fewer than 75 students, the provincially mandated minimum for operation as a charter school. This number has steadily increased. During the 2000/01 school year the enrolment reached 111 in Kindergarten to Grade 6 with a substantial waiting list at the lower grades.

Instruction is provided in single-grade classrooms with low student to teacher ratios. The school employs a superintendent, principal, vice-principal, secretary-treasurer, administrative assistant, seven full-time certificated academic teachers, two part-time certificated academic teachers, eight Suzuki music teachers, one choral teacher, and two full-time teacher assistants.

The school delivers the approved Alberta Learning curricula using the Suzuki approach to reinforce student learning and provides for musical opportunities to enrich their learning. Students are offered 1.5 hours of group music instruction per week on their musical instrument of choice. In addition, students receive one hour per week of choral/theory music lessons. Students have special music projects and many public performance opportunities.

15. *Suzuki Charter School Education Results Report.* 2001.

All students at the school are also provided 2.5 hours per week of French-as-a-second-language instruction. Computers are accessible to students both in their regular classrooms and in a computer laboratory having 18 networked computer stations. Art, literature, science discovery AISI projects, reading buddies, and music group lessons are often structured to incorporate multi-age groupings.

Teachers use a variety of teaching approaches catering to students' various learning styles to facilitate student success. The belief that every child has ability - it's just a matter of how you structure the environment that leads to success - directs Suzuki Charter School to create an enriching, positive learning experience.

CHAPTER 3. Provincial Achievement Results by School

INTRODUCTION

In this section of our report we address the first two objectives of the study:

- To compare the achievement of the 10 charter schools in Alberta to the results obtained by the students in the local district and the province on the provincial testing measures.
- To compare the longitudinal data for each school to the local district data and the provincial data, on the provincial testing measures.

In attempting to address these, we used data obtained from the Alberta Learning website and databank to describe the longitudinal trends for each of the charter schools, relative to the province and to the local jurisdictions serving the geographic area in which each school is physically located. All longitudinal comparisons cover the years from 1997 to 2001 or the years during which the school was in operation, if that time period is shorter than this five-year span.

In the province of Alberta, the expectation is that 85% of students writing the standardized provincial achievement tests (PATs) will meet the *Acceptable Standard* benchmark, and of those, 15% will meet the *Standard of Excellence* benchmark. The first set of figures for each school presents information regarding the percentage of students each year reaching or exceeding these standards by grade and by subject. The second set of figures provides longitudinal comparisons between the percentages of students in the charter school reaching or exceeding the *Acceptable* and *Excellence* benchmarks and those in the jurisdictions in which the school is located and in the province.

It should be noted that, in the first two sets of figures, the Alberta Learning expectation of 85% of students meeting the *Acceptable* benchmark was applied rigidly to all schools examined. This places schools having small class sizes at a disadvantage because of the undue influence one or two students may have on the overall results for the school. For example, in several instances schools showed only 84% of their students meeting the *Acceptable* benchmark because technically they had not met the benchmark in a given subject. For a class of 6 students, this meant that only one person had not met the benchmark.

Missing from the analysis is the Boyle Street Education Centre. *This omission was not accidental.* First, the school has very few students completing provincial achievement or diploma examinations. Second, because of the very low numbers writing the provincial achieve-

ment tests in this school the provincial government does not make the results available publicly. Third, because of the school's mandate to serve the needs of at-risk students, success is measured in ways that cannot be quantified by achievement tests meant for mainstream students. In most cases simply improving students' attendance at school can be considered a major achievement. Every child that the school is able to assist to complete high school is a success!

In the following sections of this chapter, we present the data obtained by school and provide a synthesis relating to the objectives above.

ABC CHARTER SCHOOL

Figures 3-1 to 3-6 provide information regarding the percentages of students in ABC Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subjects.

Each bar in the diagram represents one year's results for the grade and subject shown. The top of the lower shading on each bar shows the proportion of students achieving an "acceptable" standard. The upper (darker) shading on each bar indicates the proportion achieving "excellence". The top line of the bar thus shows the proportion of students who achieved either an "acceptable" or an "excellent" standard. Where the top of the bar is below 100%, one or more students achieved neither level.

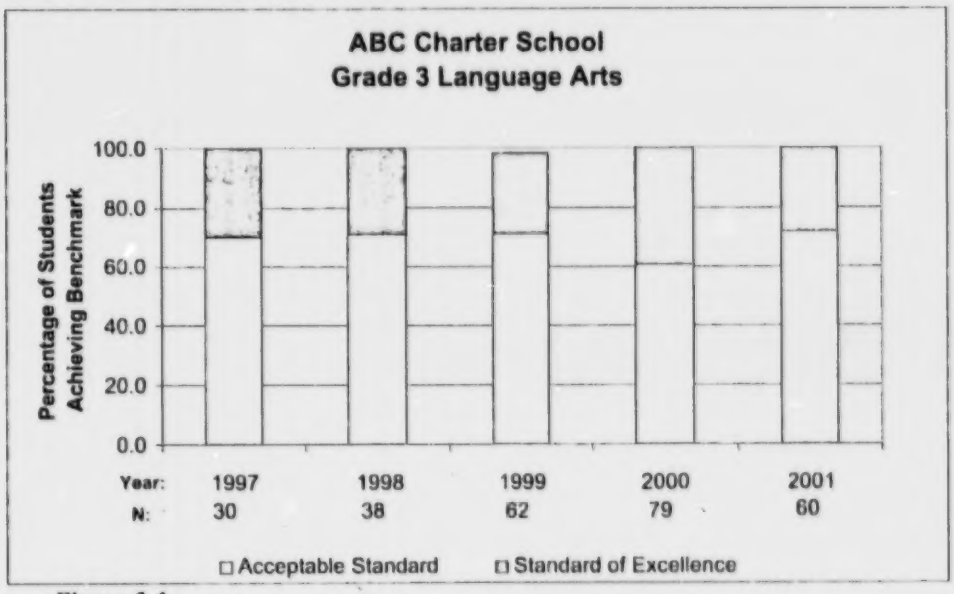


Figure 3-1

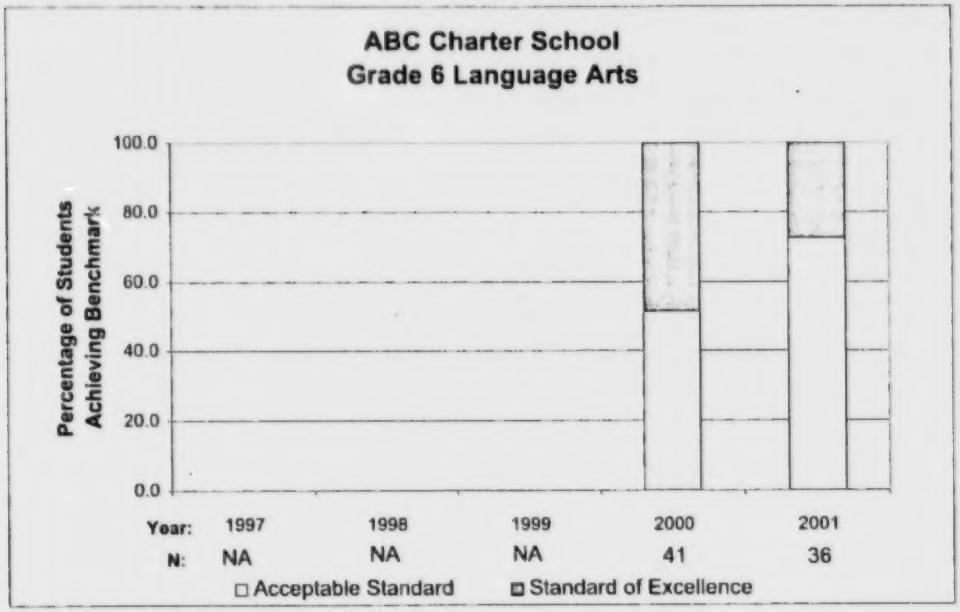
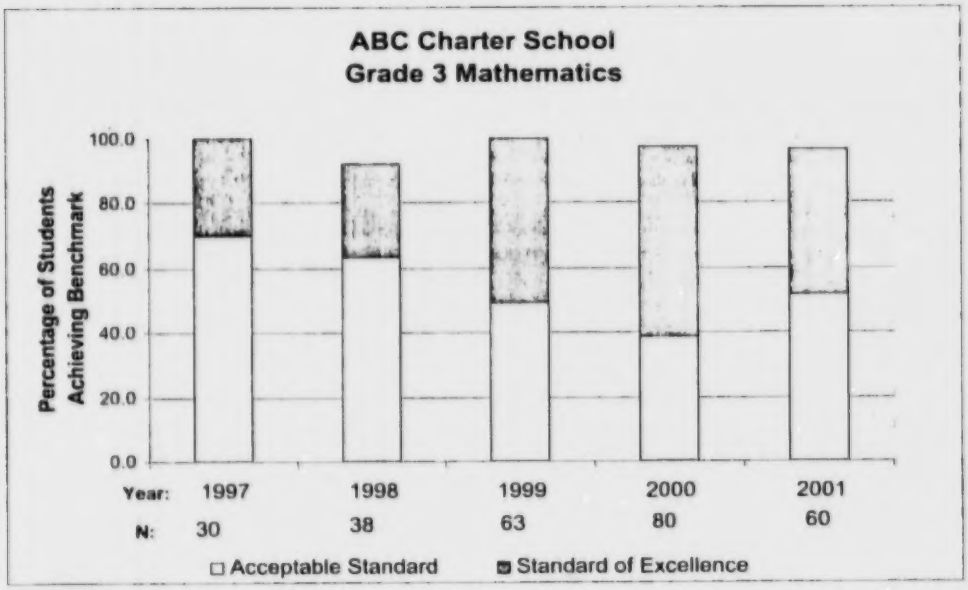


Figure 3-2



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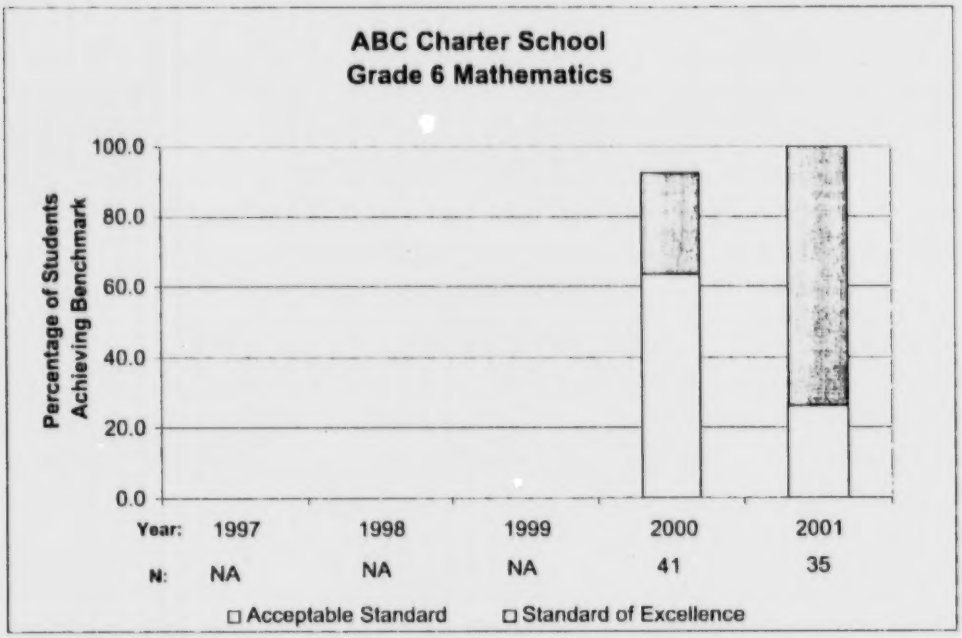


Figure 3-4

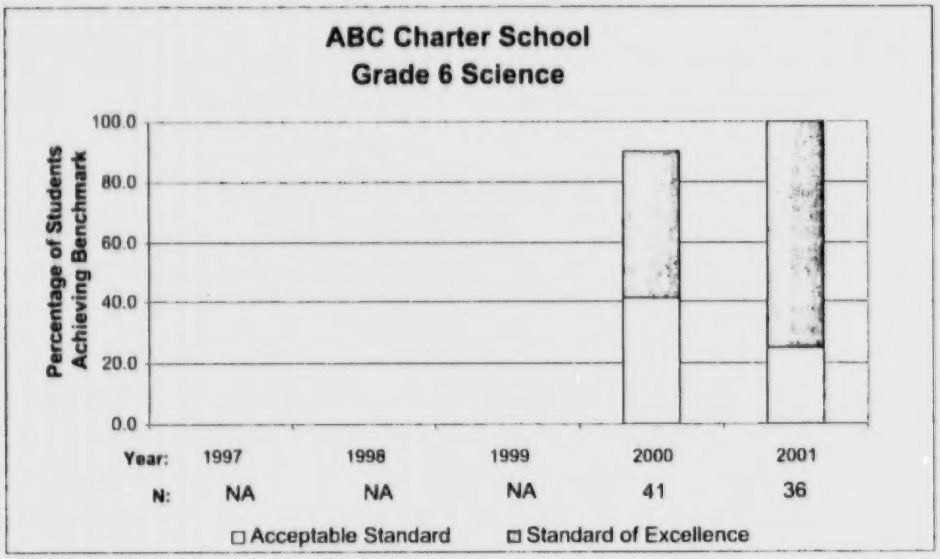


Figure 3-5

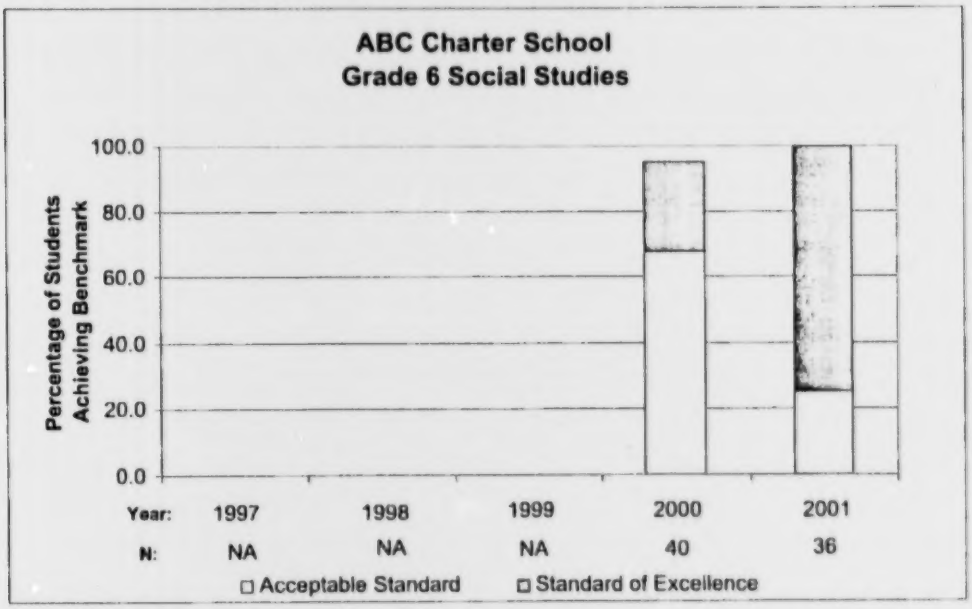


Figure 3-6

Figures 3-7 to 3-12 provide us with comparisons of the percentages of students in ABC Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.

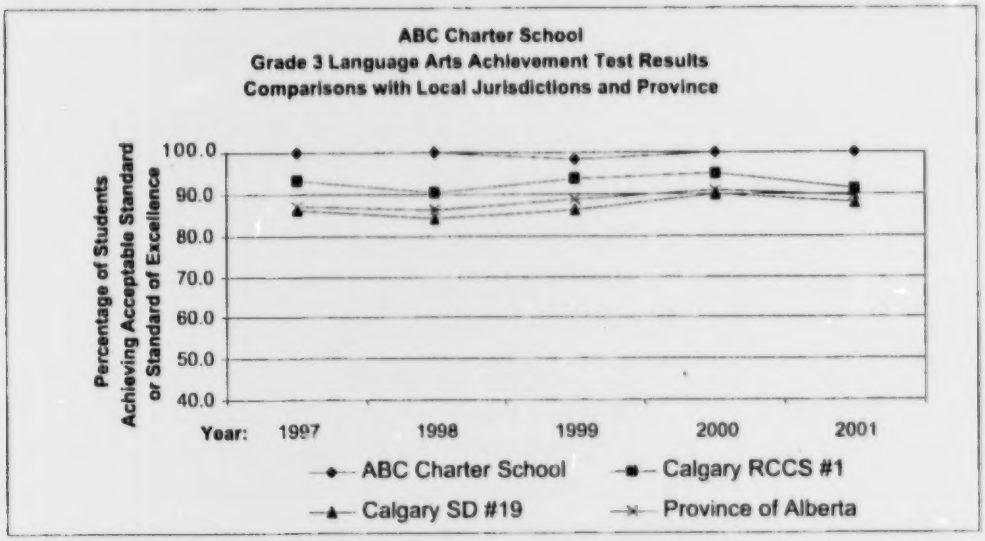


Figure 3-7

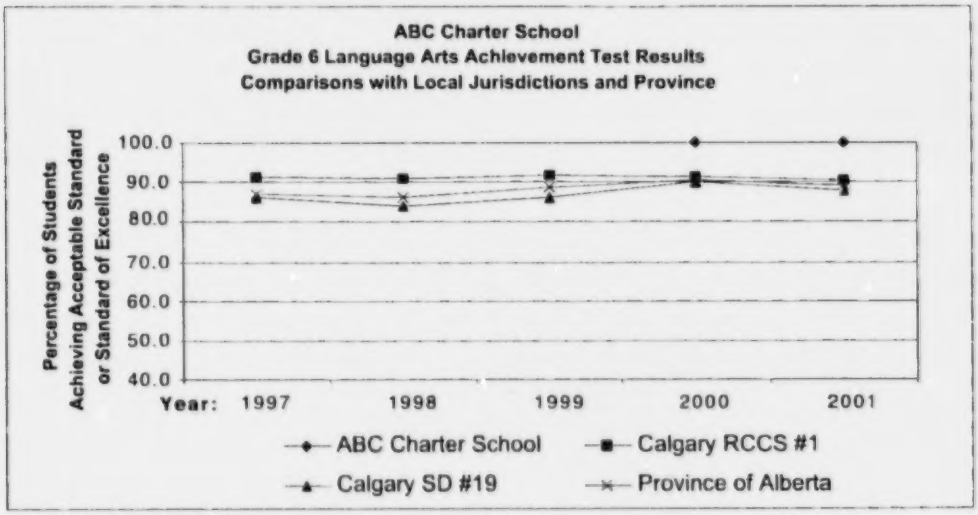


Figure 3-8

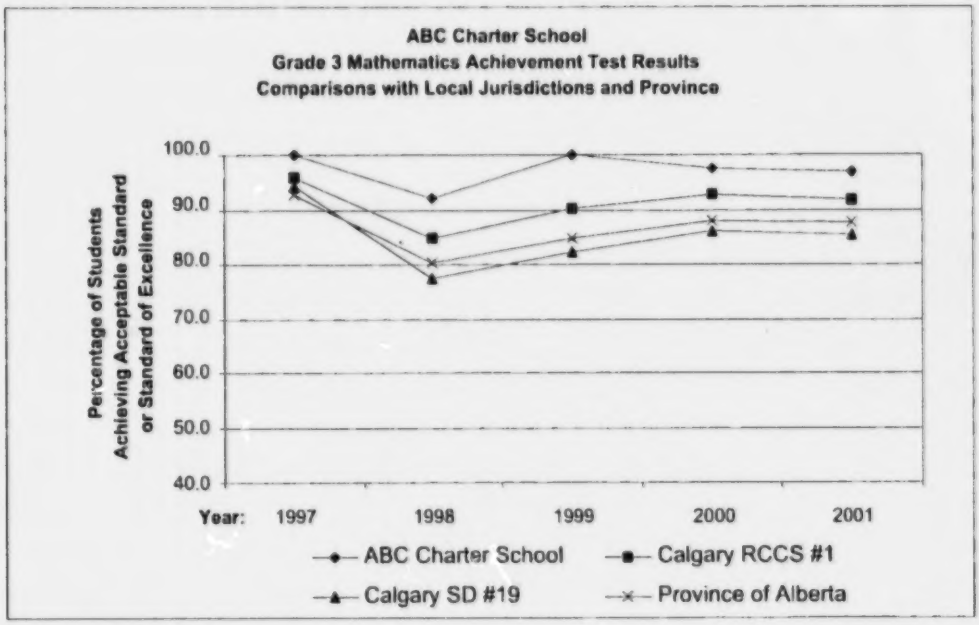


Figure 3-9

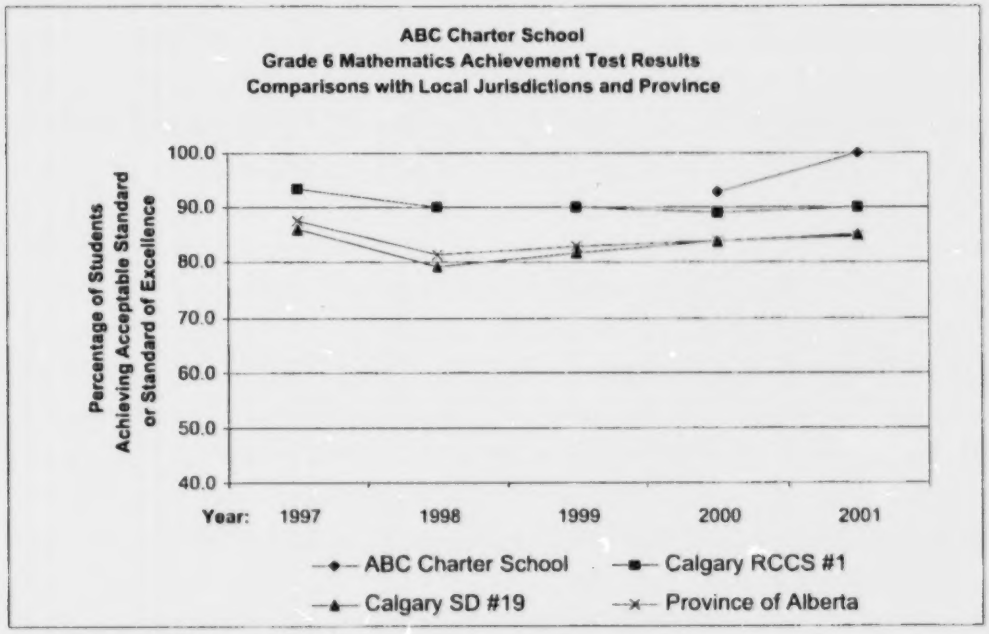


Figure 3-10

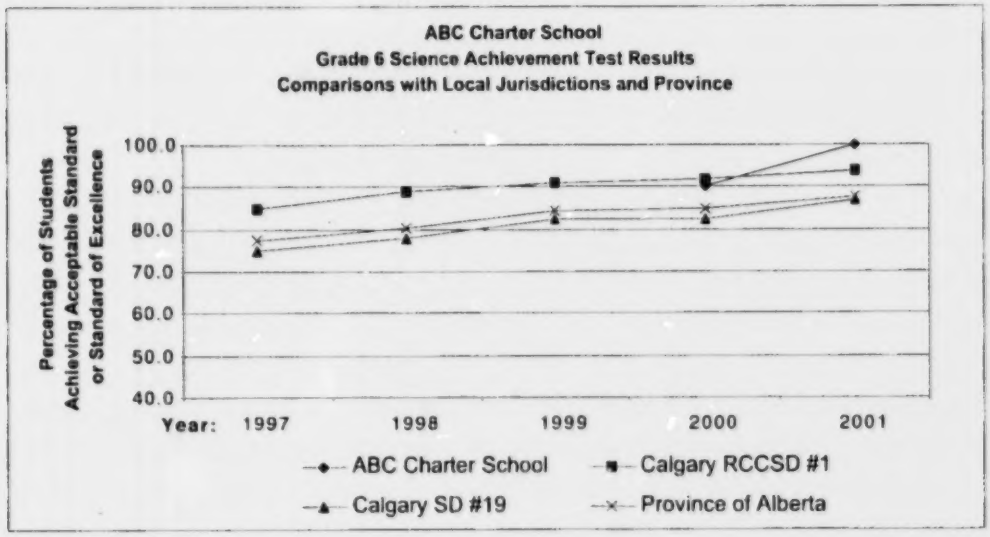


Figure 3-11

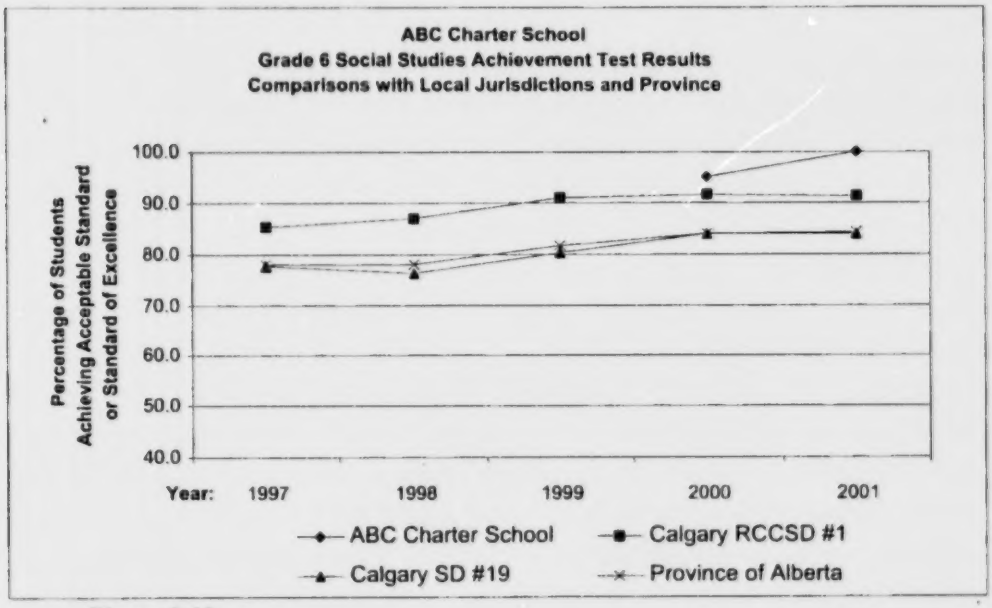


Figure 3-12

Interpretation of the Data for ABC Charter School

ABC Charter School appears very favourably in relation to the local jurisdictions (Calgary SD #19 and Calgary RCCSD #1) and the province over the testing period covering 1997 to 2001. Proportions of students achieving the *Acceptable Standard* or the *Standard of Excellence* in Language Arts and Mathematics at the Grade 3 level are consistently higher than those obtained by the local jurisdictions and the province for all years analyzed (1997-2001).

Grade 6 data for the school are only available for the years 2000 and 2001. A higher proportion of Grade 6 students writing the Language Arts, Mathematics, and Social Studies provincial achievement tests in both 2000 and 2001 met the *Acceptable Standard* and the *Standard of Excellence* than in the local jurisdictions and the province. The proportion of students from ABC Charter School achieving the *Acceptable Standard* and the *Standard of Excellence* in the Grade 6 Science provincial achievement tests was consistently higher than the province and Calgary SD #19 (see Figures 3-7 to 3-12). In 2000, ABC Charter School had approximately the same proportion of students achieving the *Acceptable Standard* as Calgary RCCSD #1 in Science, Social Studies, and Mathematics. However, in 2001 all students at ABC Charter School achieved the *Acceptable Standard* or the *Standard of Excellence* which was higher than the proportion of students obtaining either of these standards in the Calgary RCCSD #1.

ALMADINA CHARTER SCHOOL

Figures 3-13 to 3-22 provide information regarding the percentages of students in Almadina Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subjects.

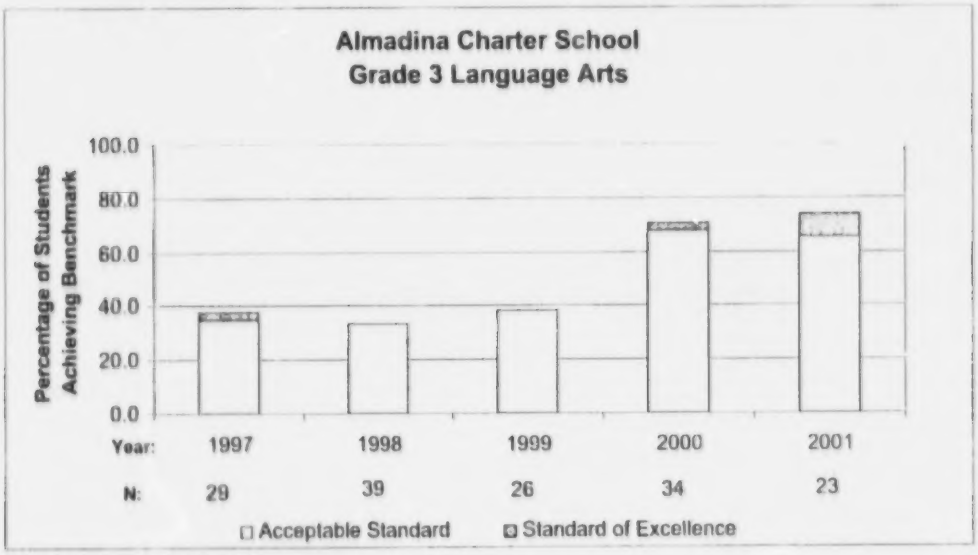


Figure 3-13

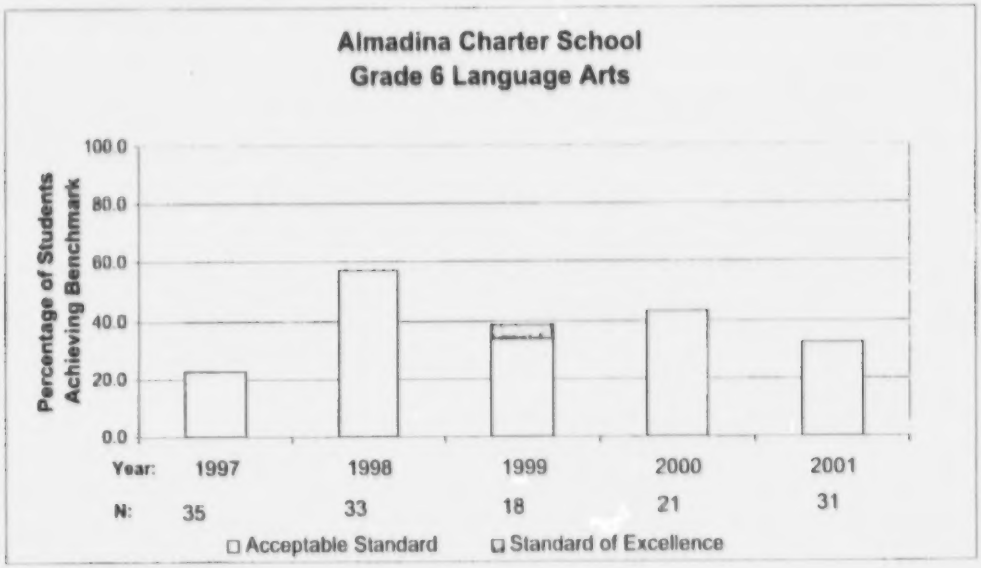


Figure 3-14

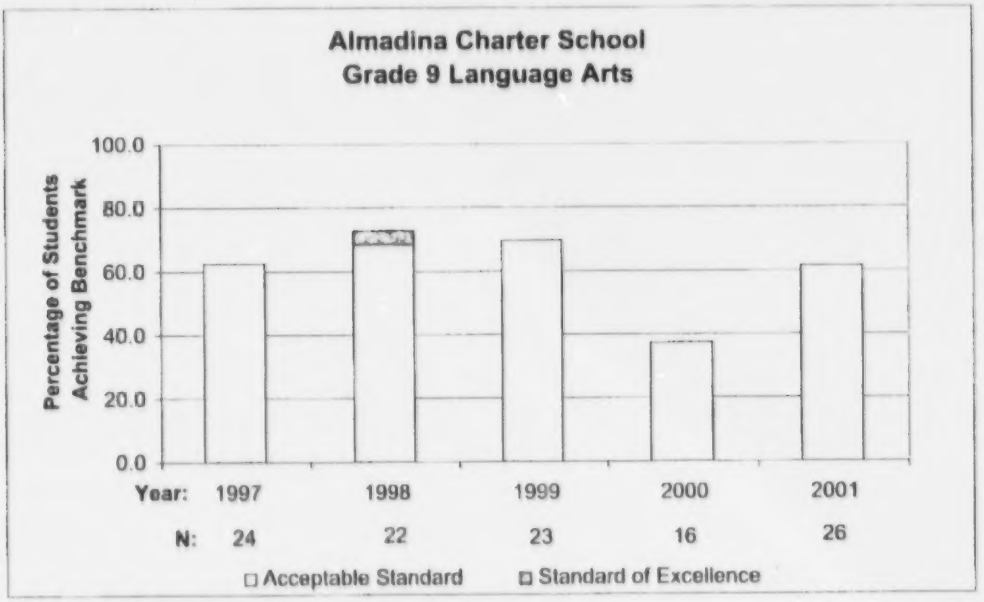


Figure 3-15

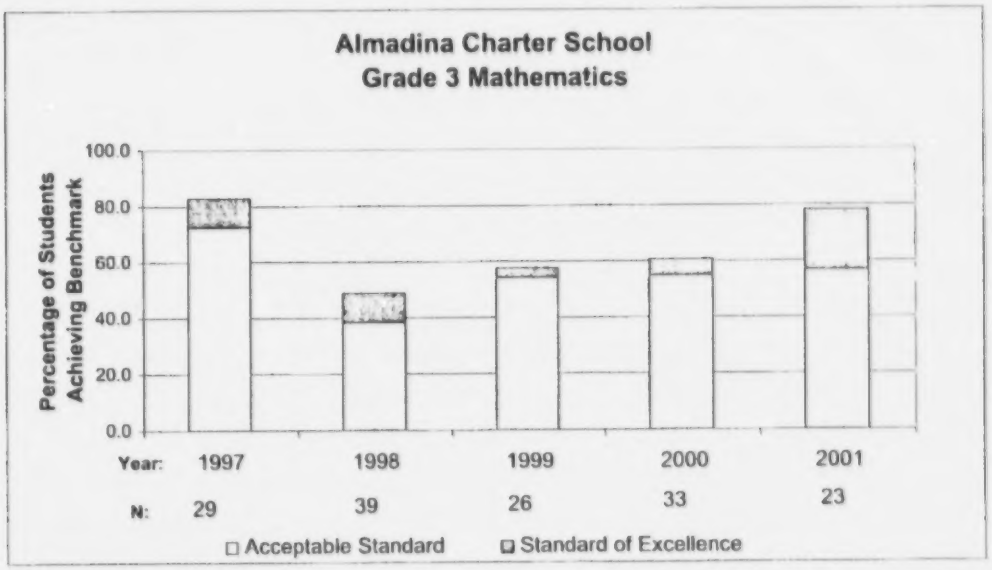


Figure 3-16

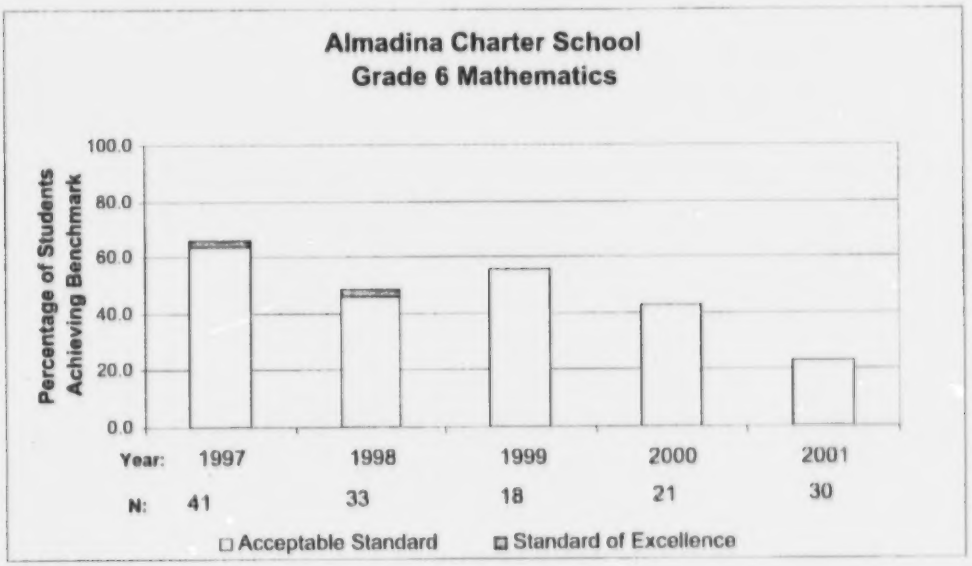


Figure 3-17

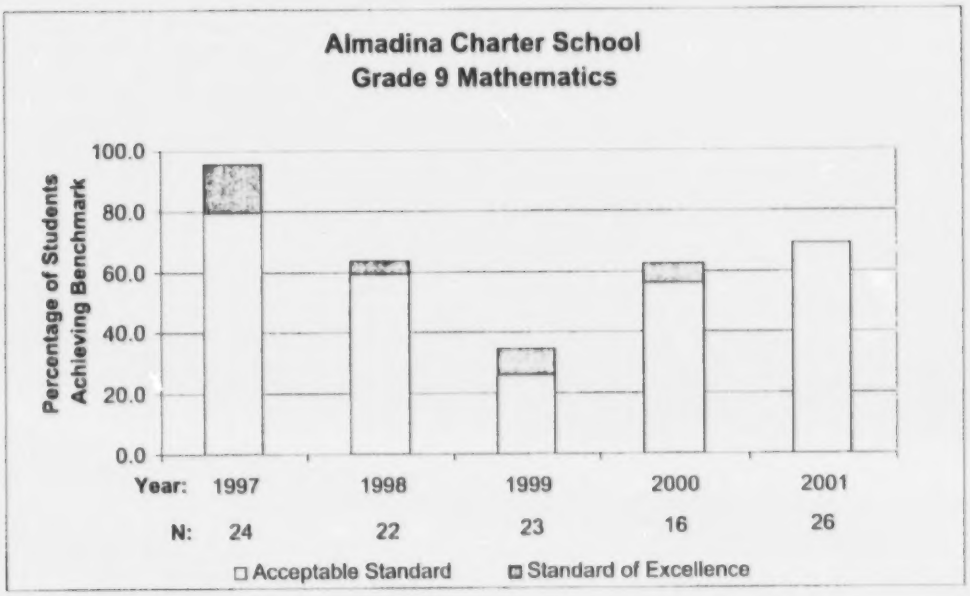


Figure 3-18

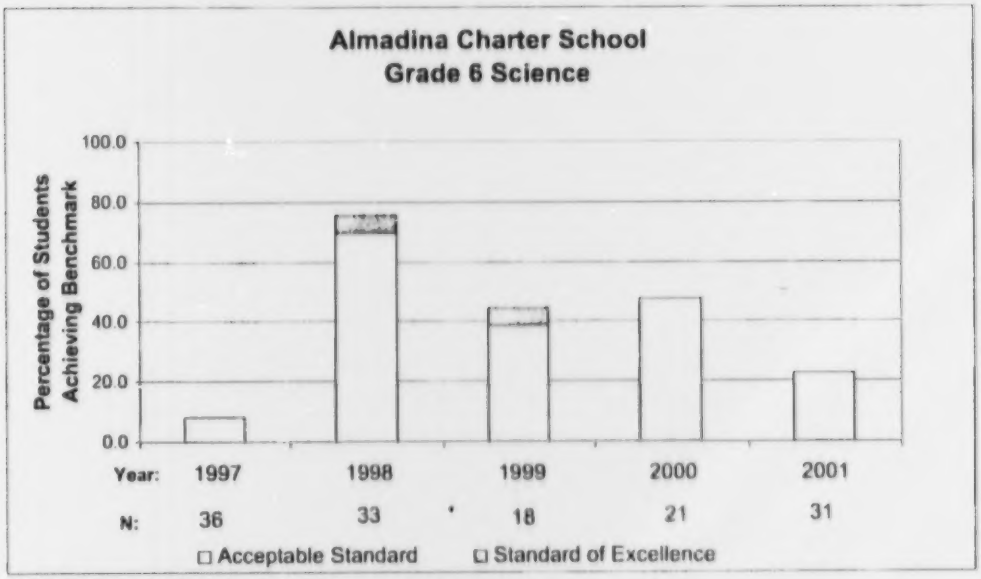
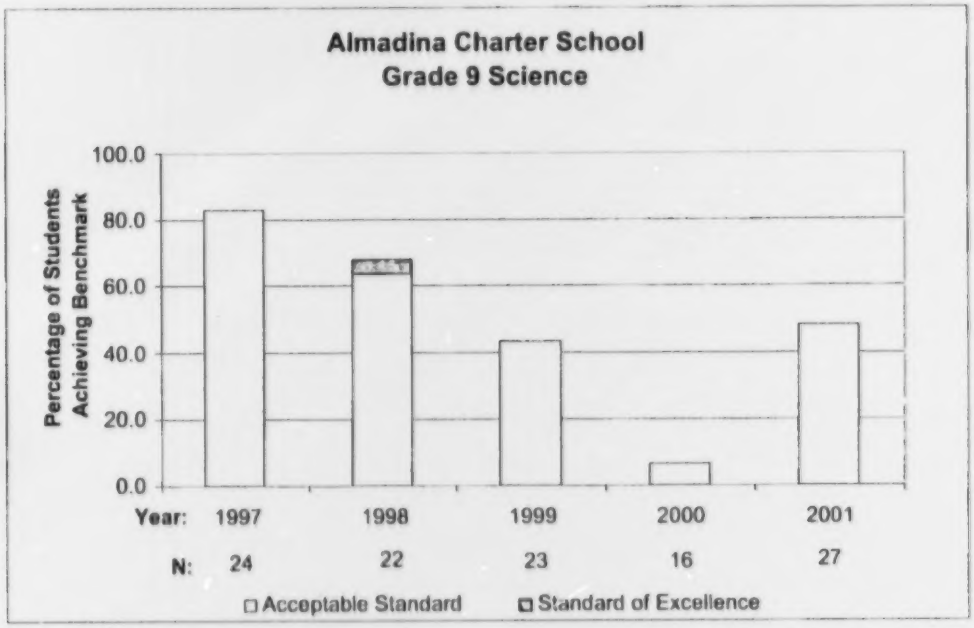


Figure 3-19



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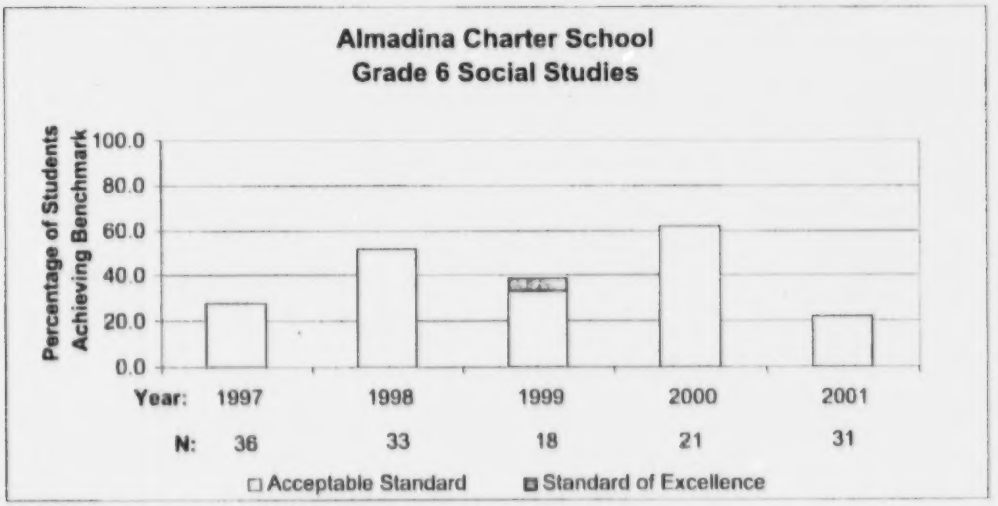

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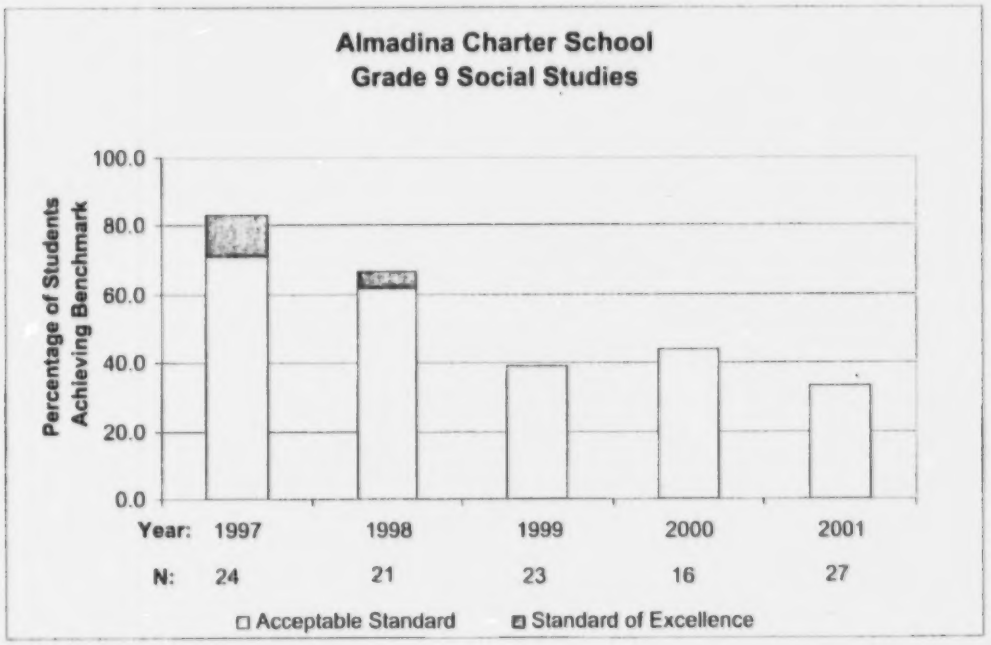


Figure 3-22

Figures 3-23 to 3-32 provide us with the comparisons of the percentages of students in Almadina Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.

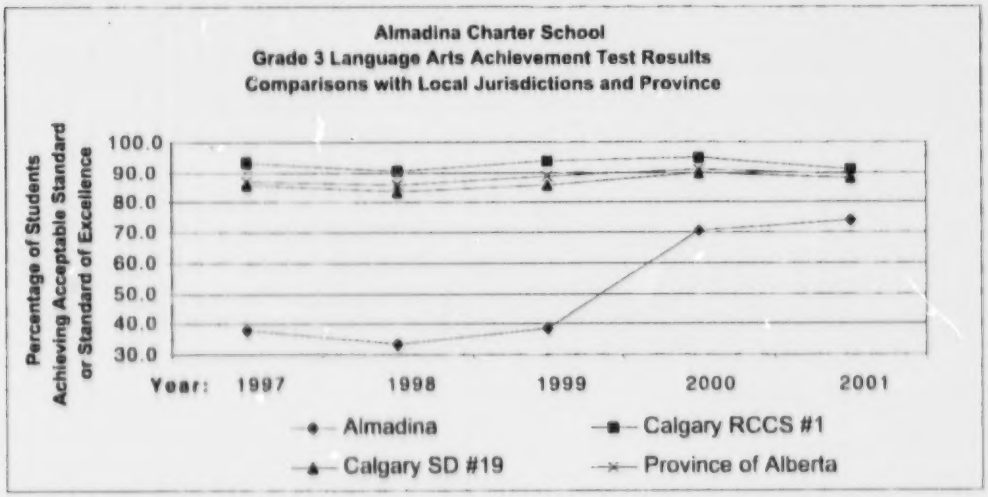


Figure 3-23

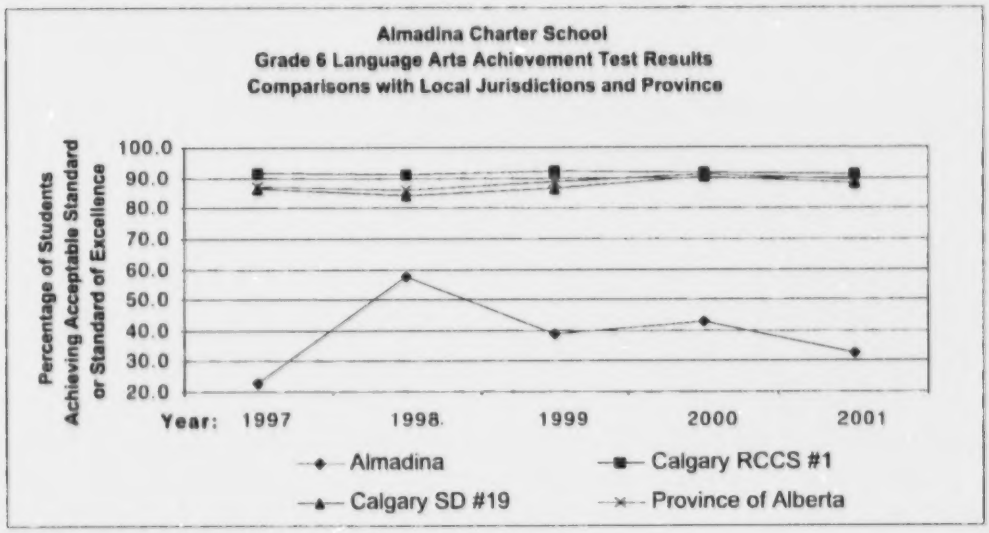
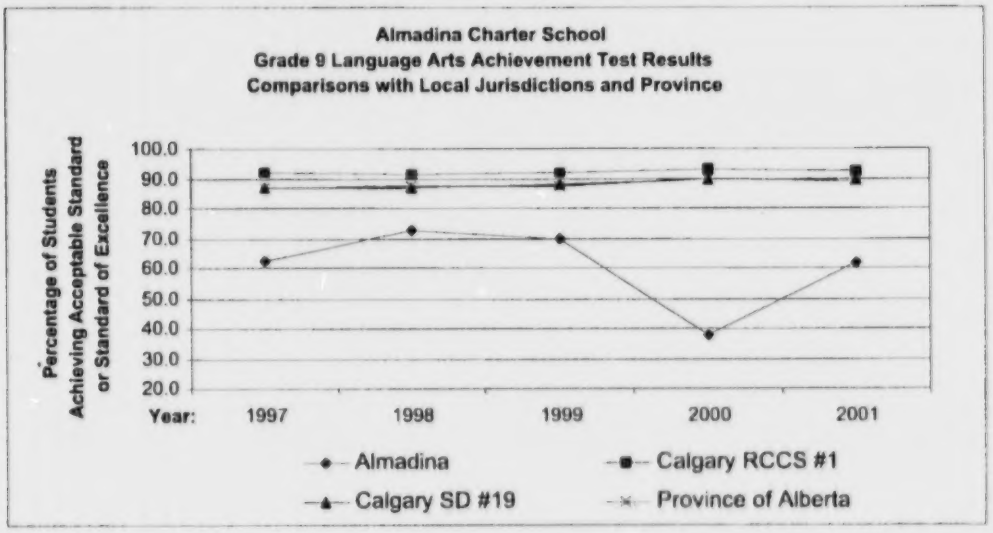


Figure 3-24



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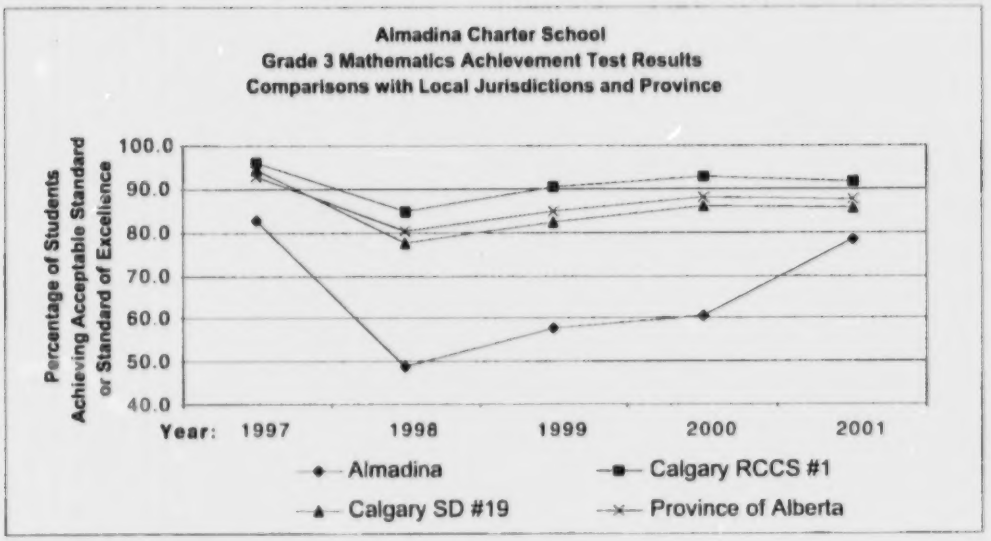
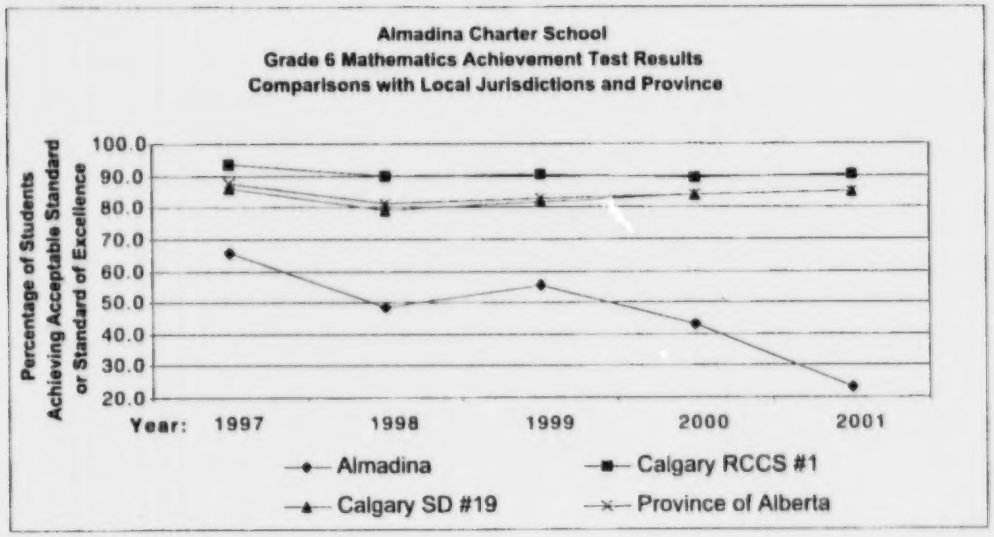


Figure 3-26



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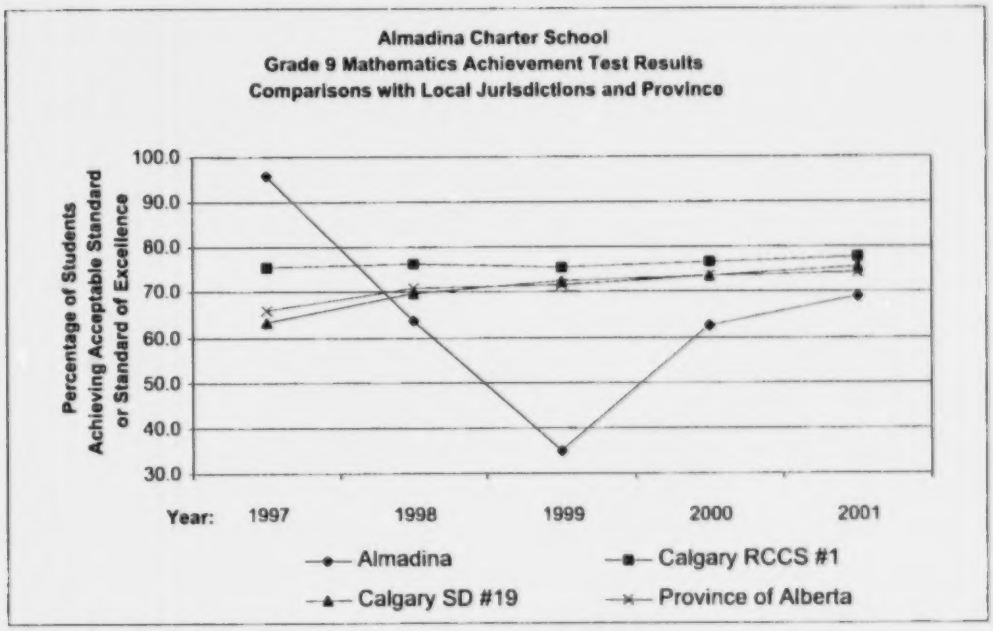

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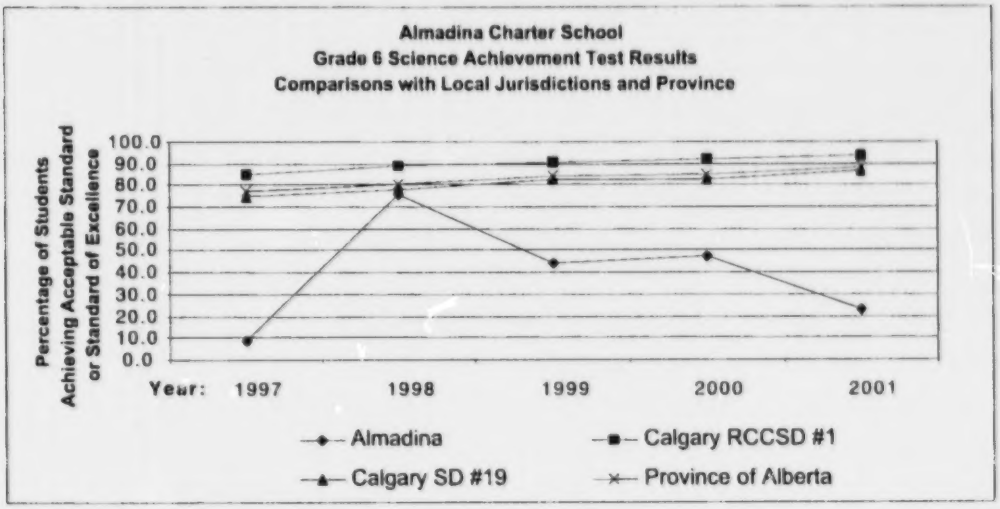


Figure 3-29

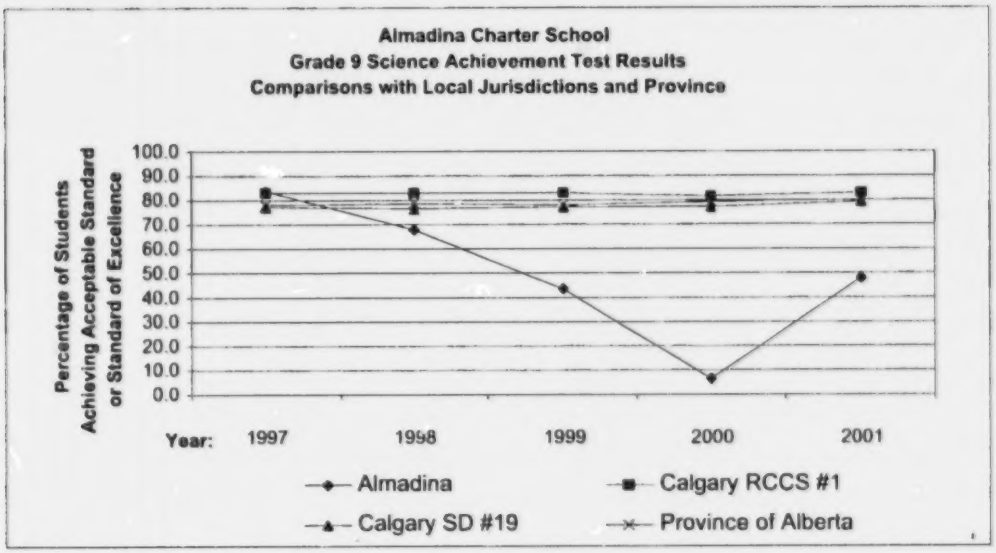


Figure 3-30

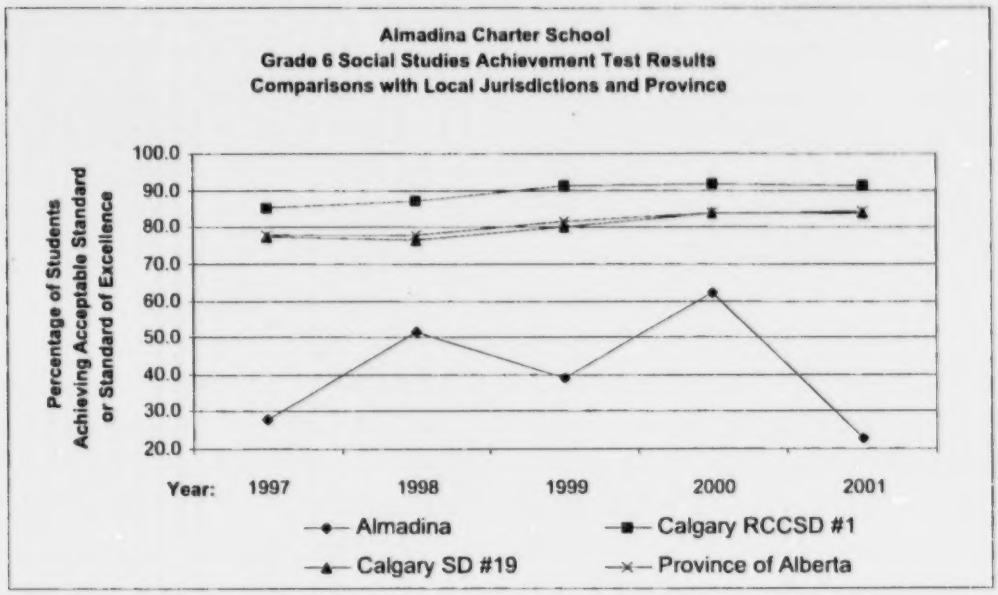


Figure 3-31

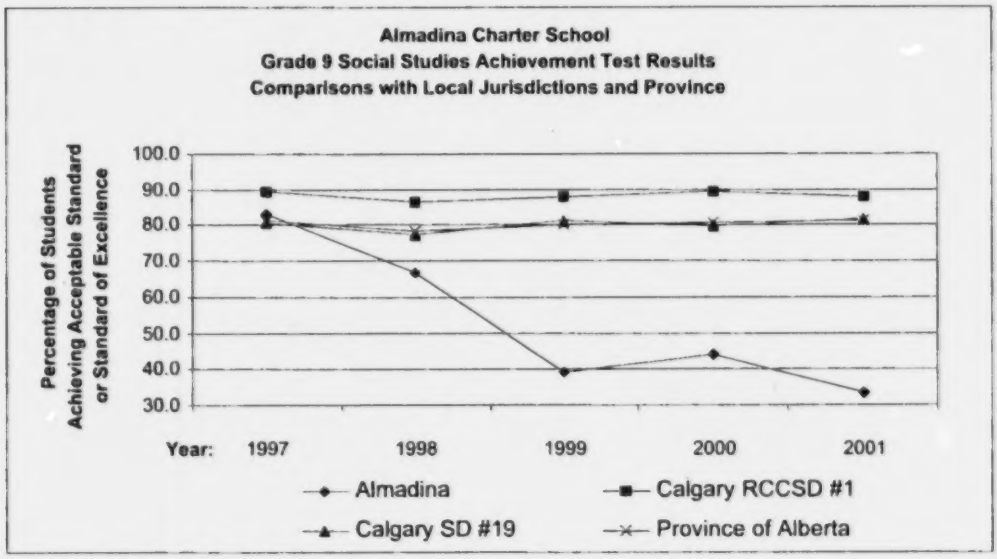


Figure 3-32

Interpretation of the Data for Almadina Charter School

By these comparisons, Almadina Charter School does not appear to perform very well against its local jurisdictions (Calgary RCCSD #1 and Calgary SD #19) or the province. However, one must remember that the mandate of this school is to serve English as a second language (ESL) students. Since the PATs administered at Almadina Charter School are in English, students are at a distinct disadvantage.

The results obtained by students at the various grade levels and from the various subject area tests are extremely variable – much more so than for any other of the charter schools studied. Each of the subject areas tested by the PATs is addressed below by grade level.

During the school's first 3 years of operation only 33% to 39% of students achieved the *Acceptable Standard* or the *Standard of Excellence* on the Grade 3 Language Arts PAT. This was approximately 50% fewer than the local jurisdictions or the province. However this gap was narrowed greatly during the 2000 and 2001 school years with between 71% and 74%, respectively, of students achieving the *Acceptable Standard* or the *Standard of Excellence* (see Figure 3-29). At the Grade 6 level in Language Arts, the percentage of students achieving the *Acceptable Standard* or better varied from 23% to 58% as compared to the local jurisdictions and the province which had 84% to 92% of their students achieving the *Acceptable Standard* or better (see Figure 3-30). Almadina Charter School Language Arts results at the Grade 9 level have similarly varied between 38% and 73% of students achieving the *Acceptable Standard* or better as compared to the local jurisdictions and the province which ranged between 87% and 93% of students achieving the *Acceptable Standard* or better.

Between 1997 and 2001 the percentage of students attending Almadina Charter School who have attained the *Acceptable Standard* or the *Standard of Excellence* on the Grade 3 Mathematics PAT has varied between 49% and 83%. During the same period of time the local comparison jurisdictions have had between 80% and 96% of their students achieving the *Acceptable Standard* or the *Standard of Excellence*. On a very positive note, the proportion of students meeting the *Acceptable Standard* on the Grade 3 Mathematics PAT has increased since 1998. At the Grade 6 level, the percentage of Almadina Charter School students writing the Mathematics PAT who achieved the *Acceptable Standard* or the *Standard of Excellence* has ranged from a high of 66% in 1997 to a low of 23% in 2001. During the same period of time approximately 79% to 94% of students in the province and the two local jurisdictions have reached or surpassed the *Acceptable Standard* on the Grade 6 Mathematics PAT. Almadina Charter School students writing the Grade 9 Mathematics PAT have also seen a decrease in the percentage of students attaining the *Acceptable Standard* or better – results have ranged from a high of 96% in 1997 to a low of 35% in 1999. However, just under 70% achieved the *Acceptable Standard* or the *Standard of Excellence* in 2001. During the same period of time proportions of students attaining the *Acceptable Standard* or better in the comparison districts and the province have ranged from 63% to 78%.

In 1997 just under 10% of students at Almadina Charter School achieved the *Acceptable Standard* or the *Standard of Excellence* on the Grade 6 Science PAT. The following year this proportion climbed to 76%. Since 1998 the trend has been downward, with only 48% of students meeting the *Acceptable Standard* last year. During this time, the percentage of students achieving the *Acceptable Standard* in the province and the comparison districts has ranged between 75% and 92%. At the Grade 9 level, over 83% of students met or exceeded the *Acceptable* on the 1997 Science PAT. This rate steadily declined until the year 2000 when the proportion of students meeting the *Acceptable Standard* or better bottomed out at 6%. During the 2001 school year this figure improved greatly, with just over 48% of students meeting the *Acceptable Standard* or better. The comparison school districts and the province had between 77% and 83% of their Grade 9 Science students meet the *Acceptable Standard* or the *Standard of Excellence* from 1997 to 2001.

In Social Studies at the Grade 6 level, proportions of students achieving the *Acceptable Standard* or better have varied from just over 20% to just over 60% with considerable variation and no pattern being exhibited since 1997. The local jurisdictions and the province had between 76% and 91% of their students achieving the *Acceptable Standard* or better. Grade 9 students writing the Social Studies PAT exhibit steadily decreasing percentages over all years studied. The comparison districts and the province ranged between 77% and 90% of students achieving the *Acceptable* or higher Standard.

AURORA CHARTER SCHOOL

Figures 3-33 to 3-42 provide information regarding the percentages of students in Aurora Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subjects.

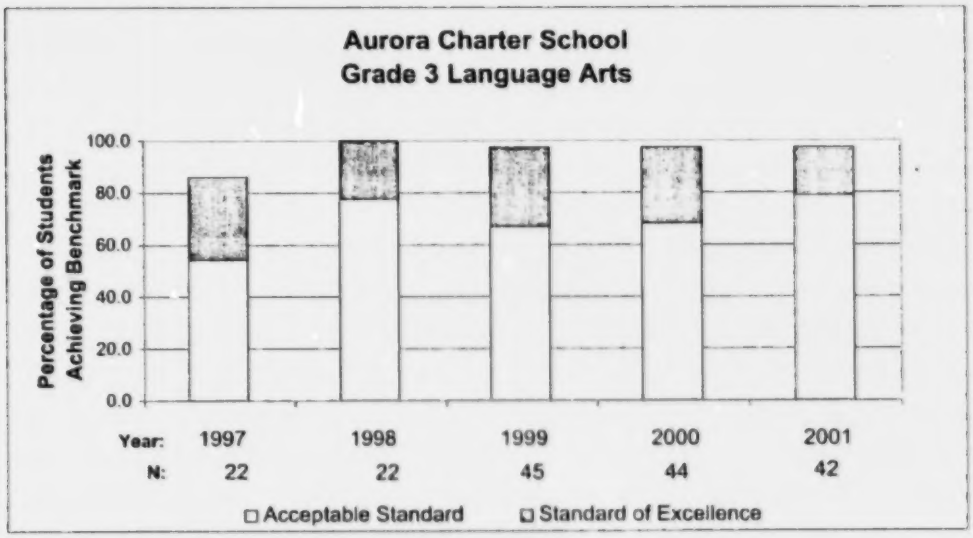


Figure 3-33

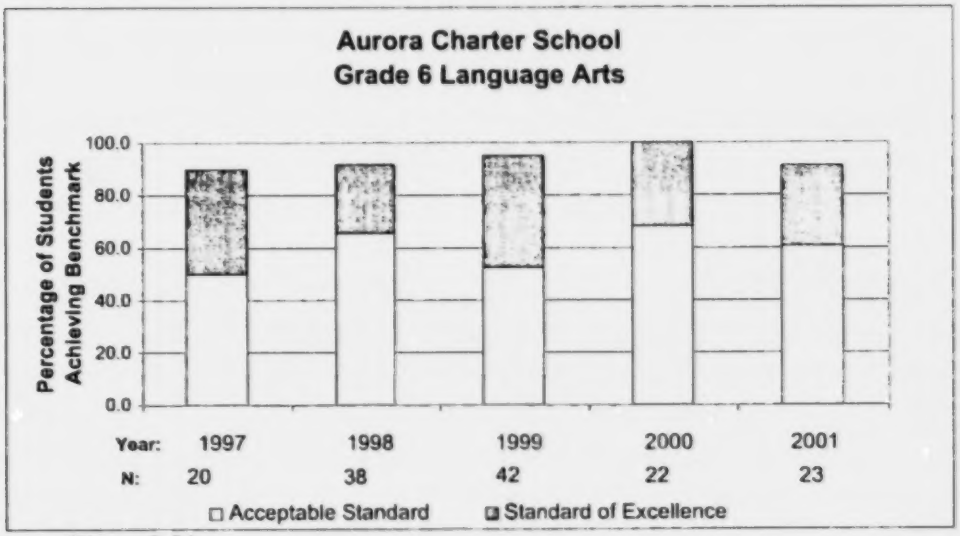


Figure 3-34

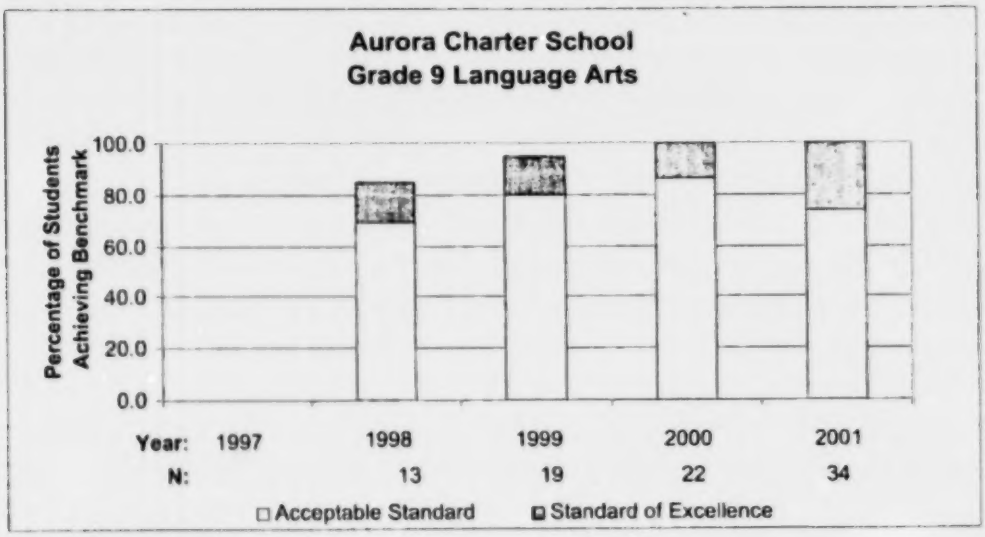


Figure 3-35

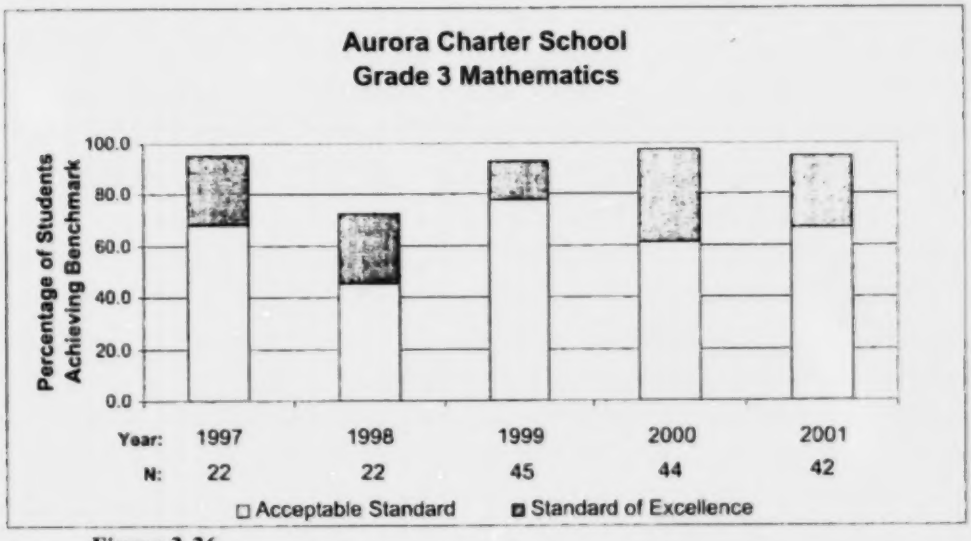


Figure 3-36

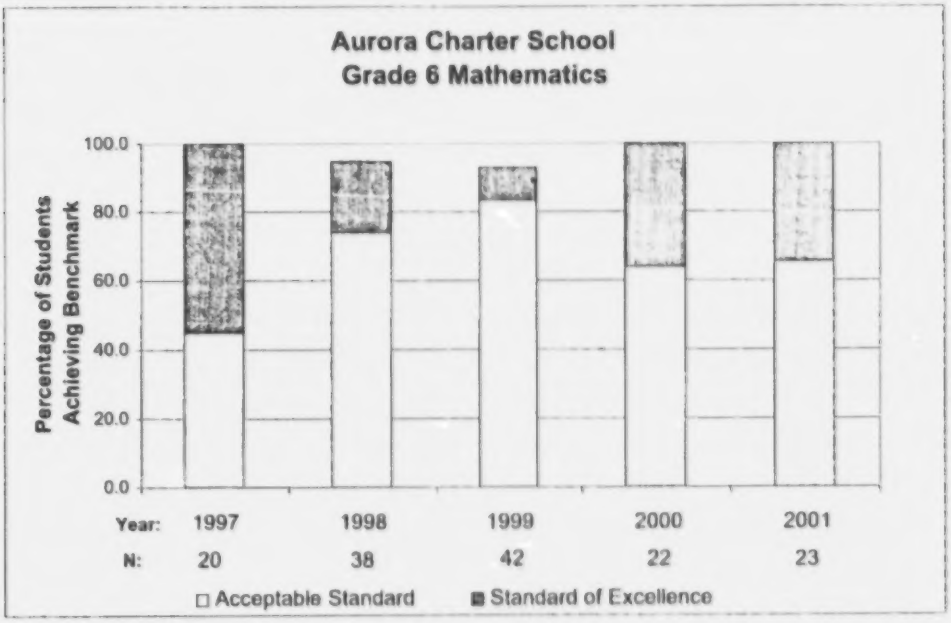
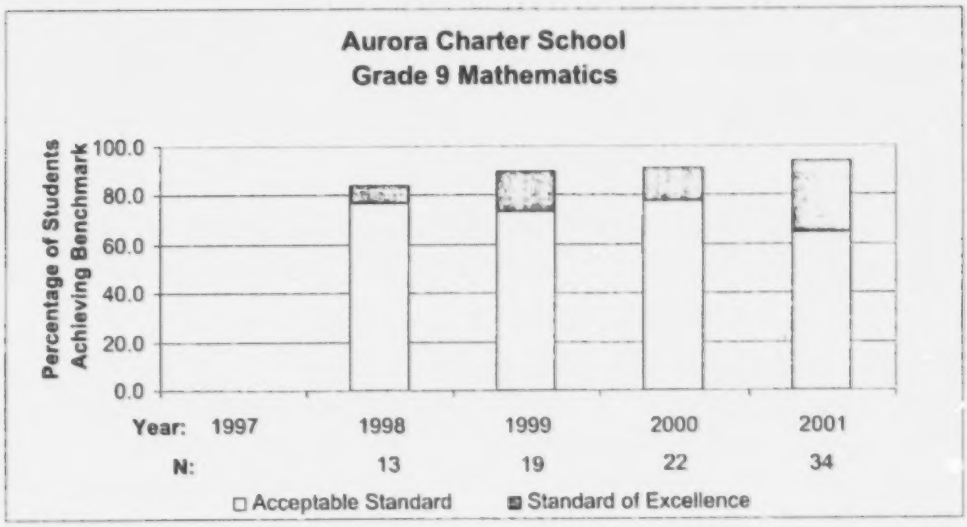


Figure 3-37



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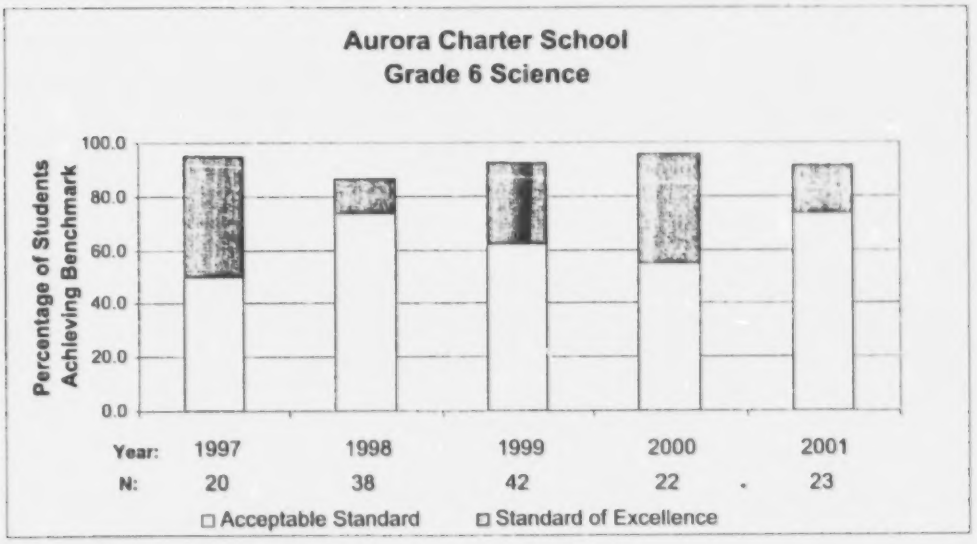

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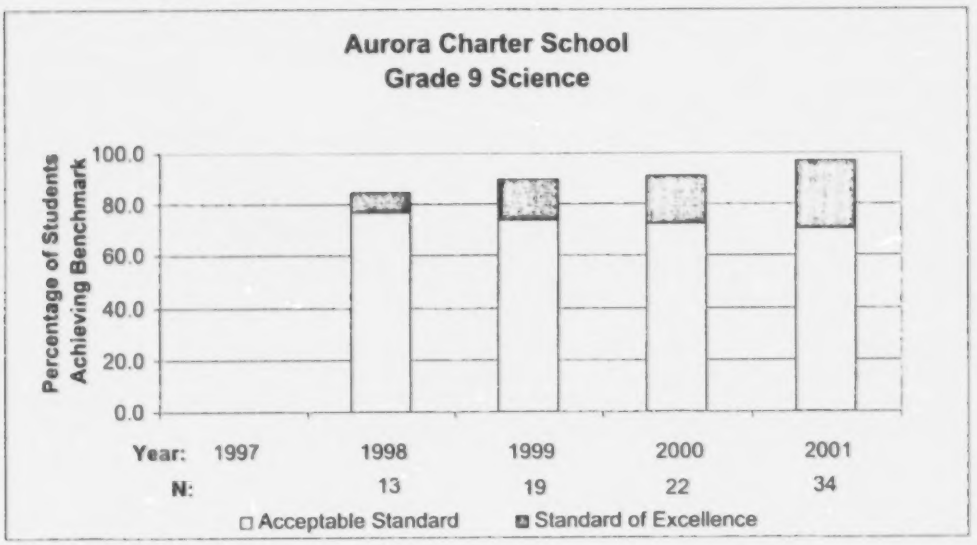

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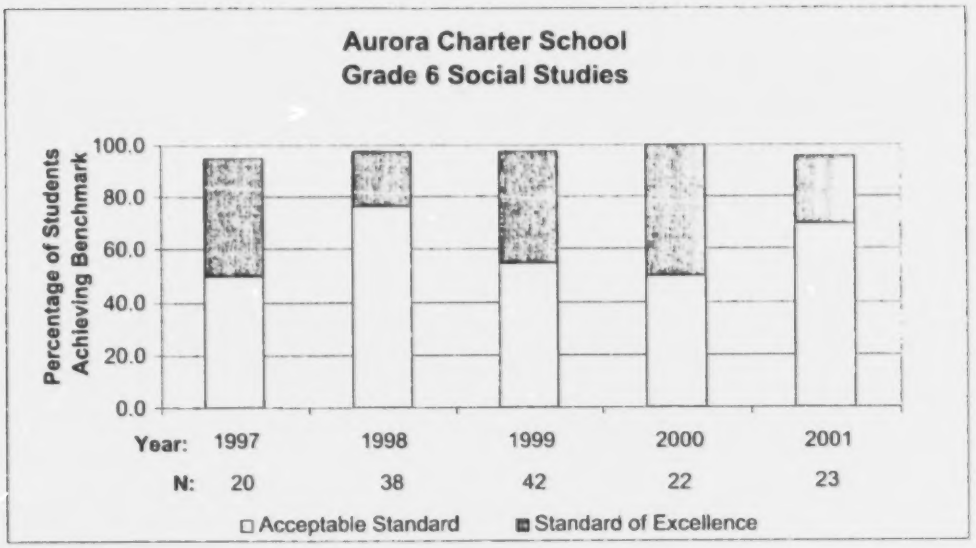

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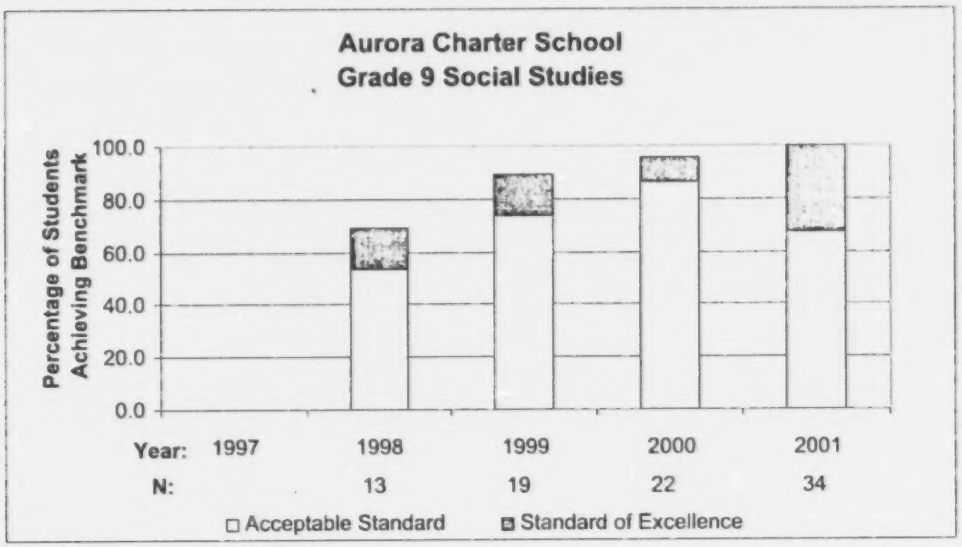
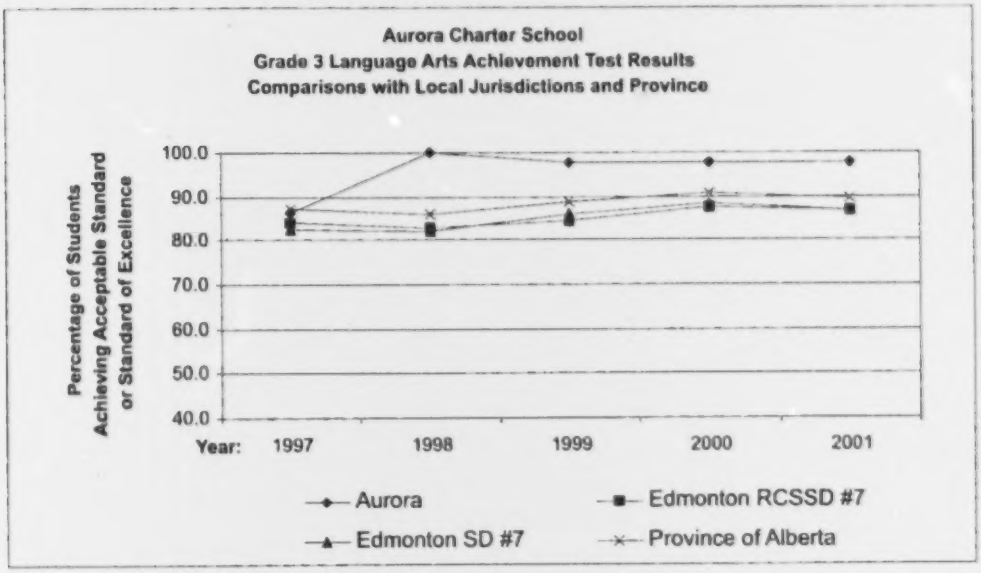


Figure 3-42

Figures 3-43 to 3-52 provide us with comparisons of the percentages of students in Aurora Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.



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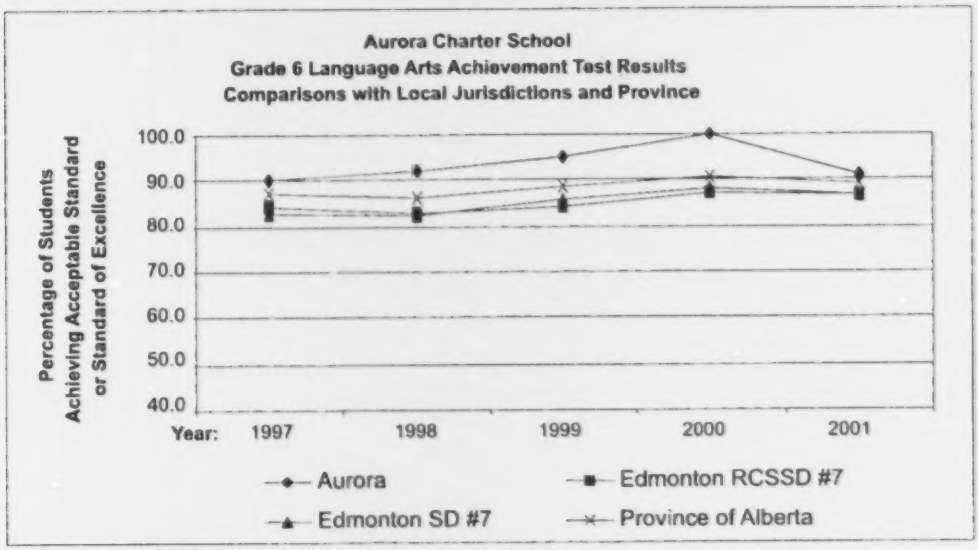

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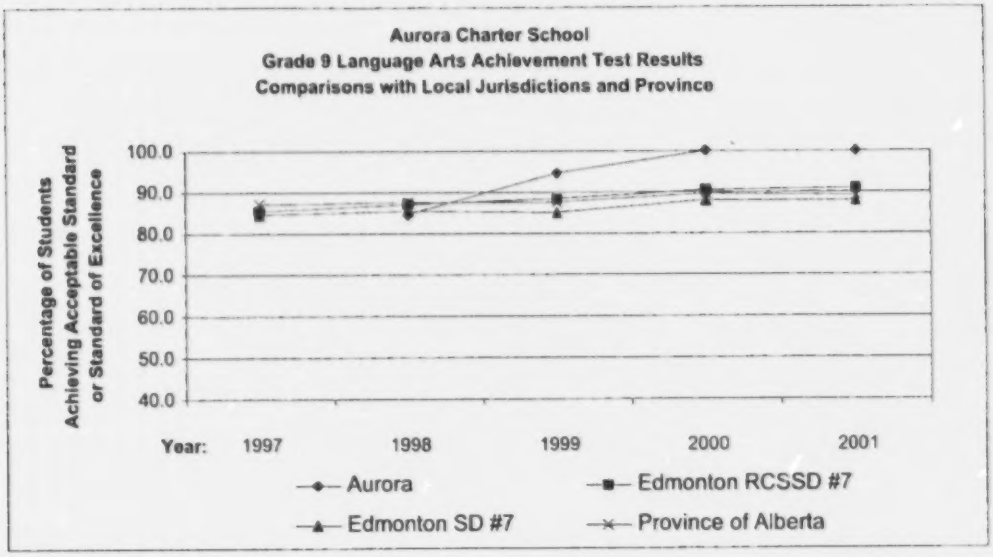

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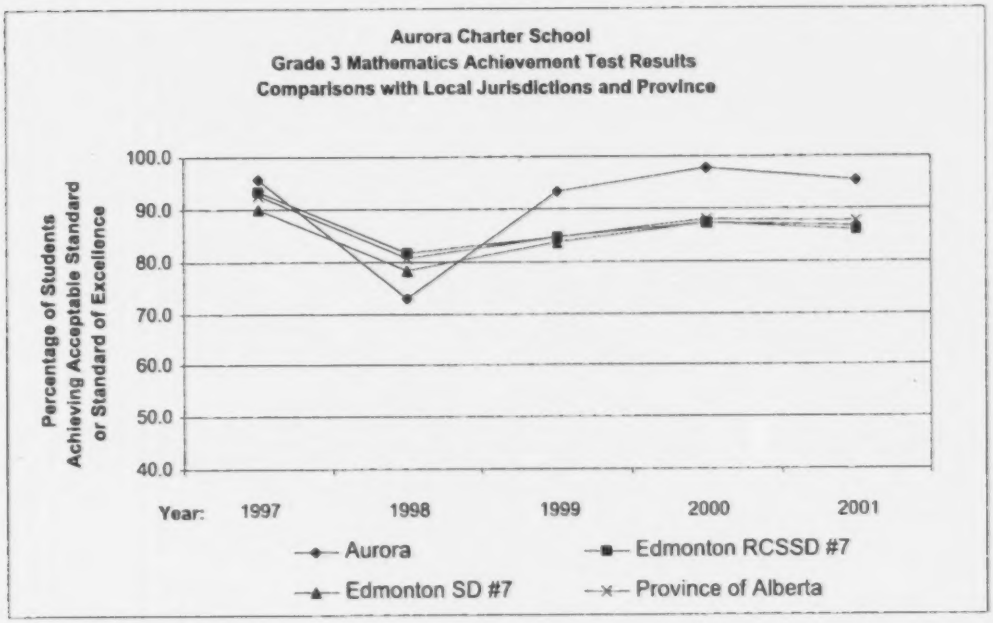

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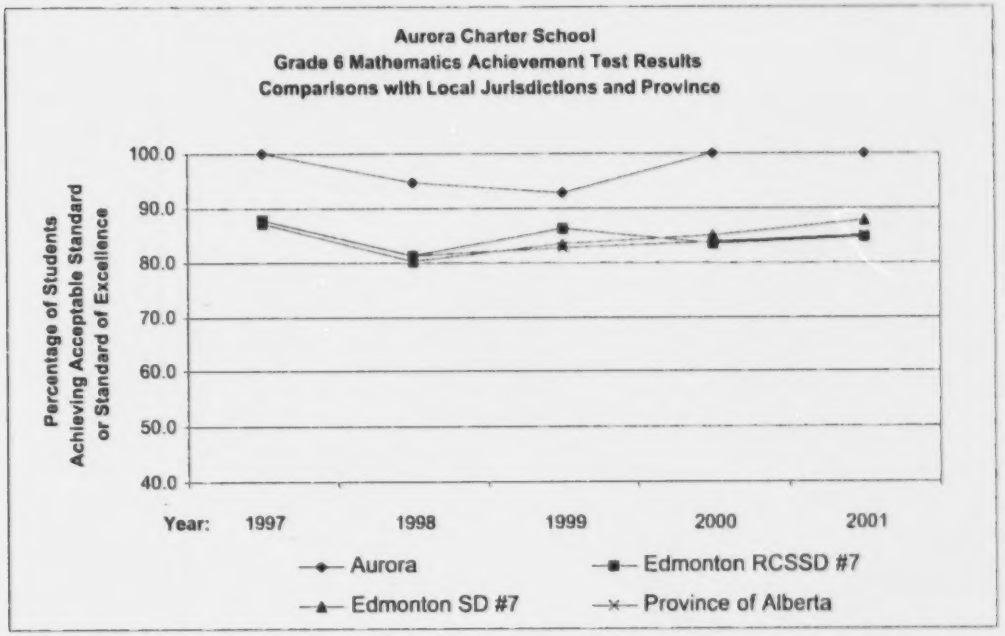

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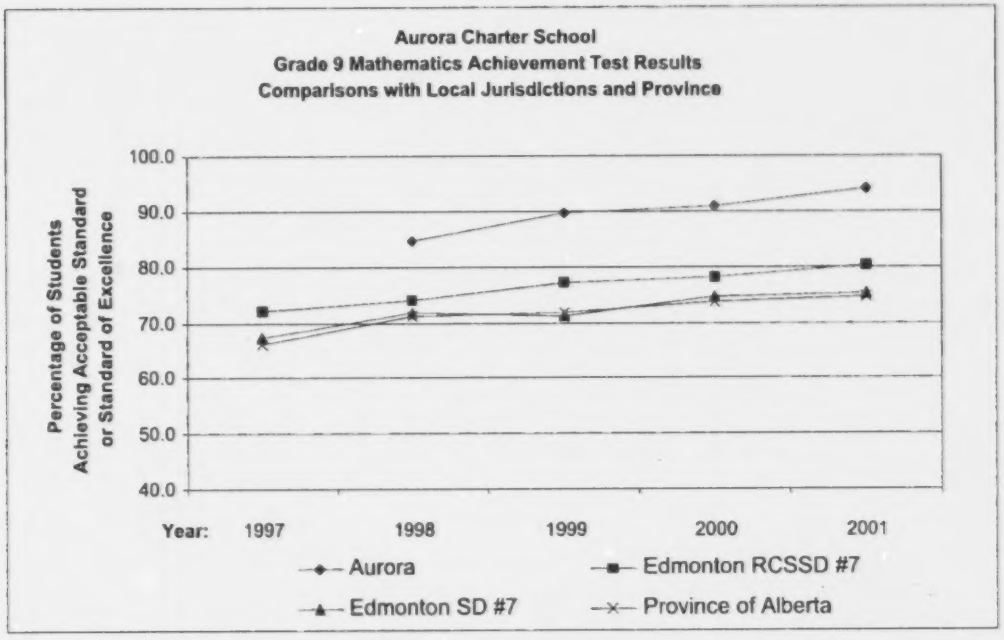

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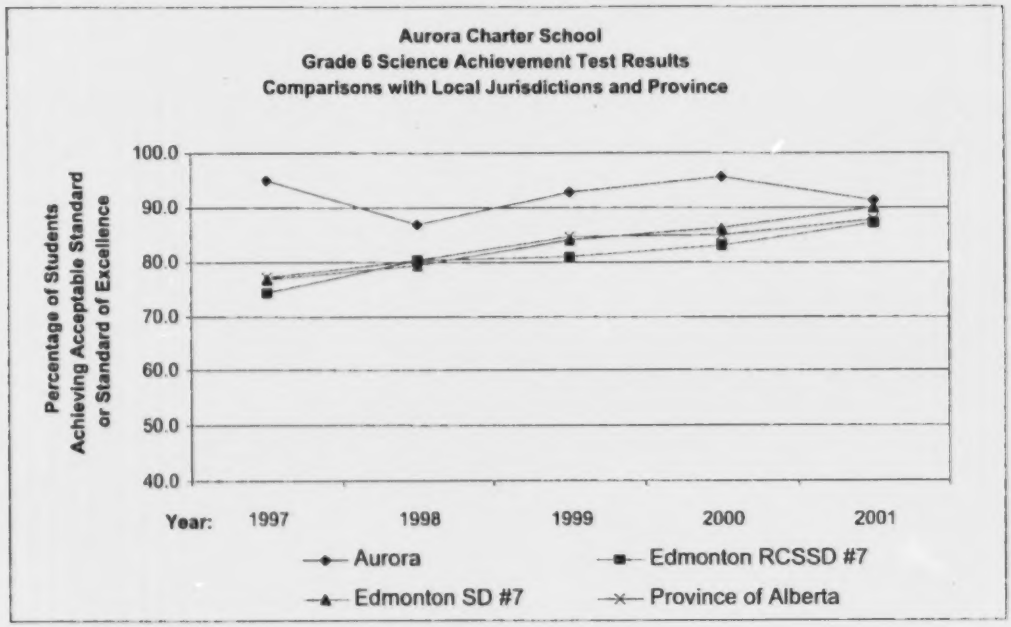

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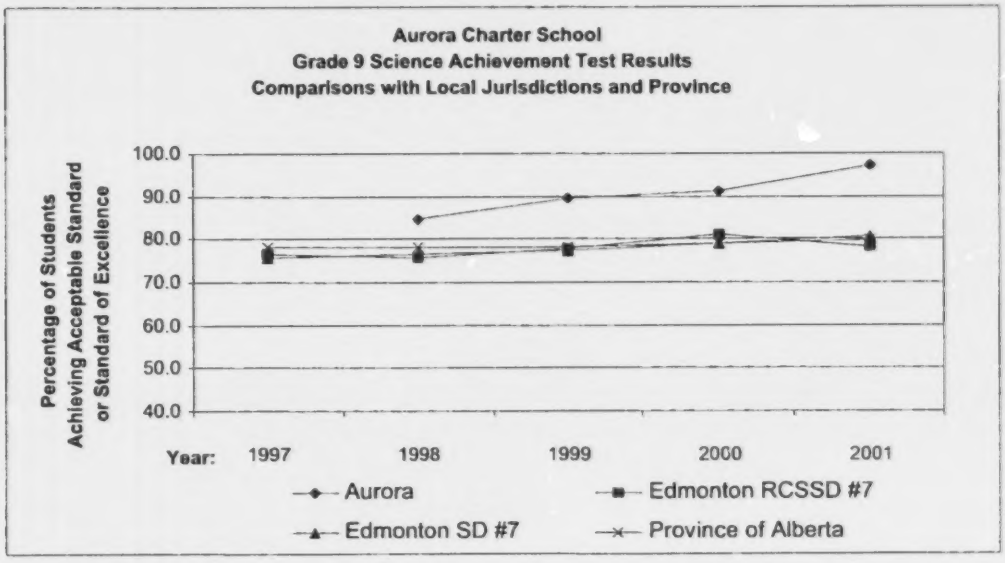
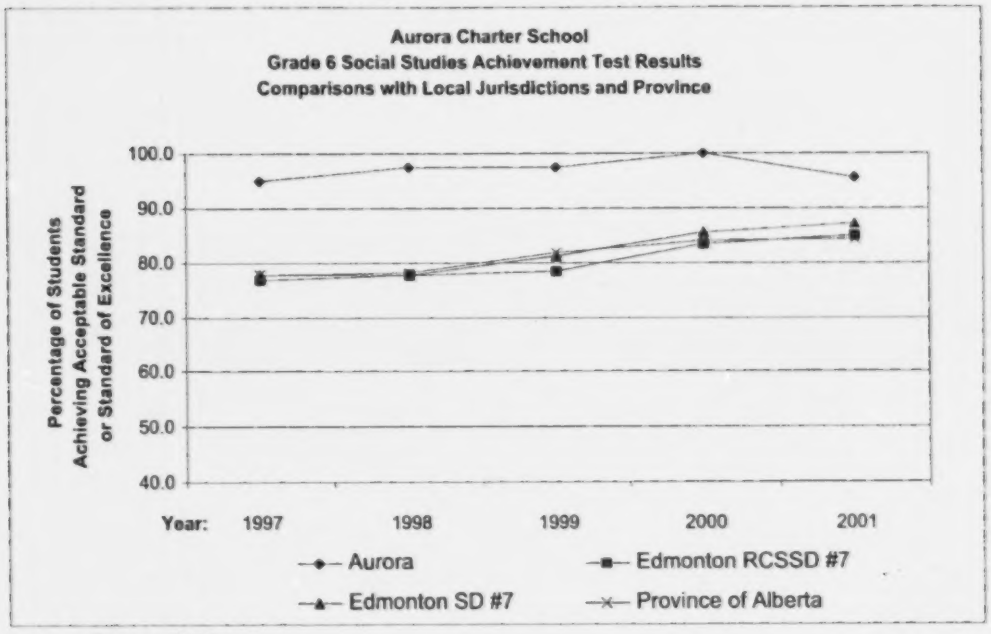


Figure 3-50



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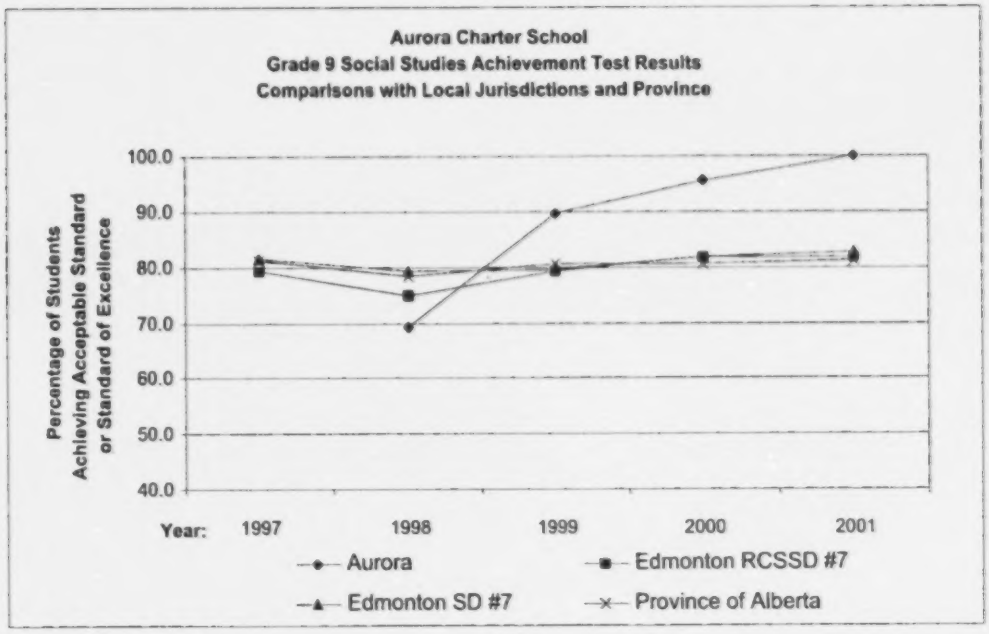


Figure 3-52

Interpretation of the Data for Aurora Charter School

In most subject areas and grade levels, students in Aurora Charter School have improved their standing relative to the local jurisdictions (Edmonton SD #7 and Edmonton RCSSD #7) and the province. In 1997 in Language Arts at the Grade 3 level, Aurora Charter School had approximately the same proportion of students as the province achieving the *Acceptable Standard* or better. However, since 1998 Aurora Charter School students have consistently outperformed the province and the local jurisdictions by 7% to 18%. At the Grade 6 level, since 1997 the school has consistently outperformed the local school jurisdictions and the province from 3% to over 13% in Language Arts. In its first year offering the Grade 9 curriculum, (1998), students at Aurora Charter School performed slightly more poorly than the province and the local jurisdictions. However, a consistent upward trend was achieved by students in the Grade 9 PATs.

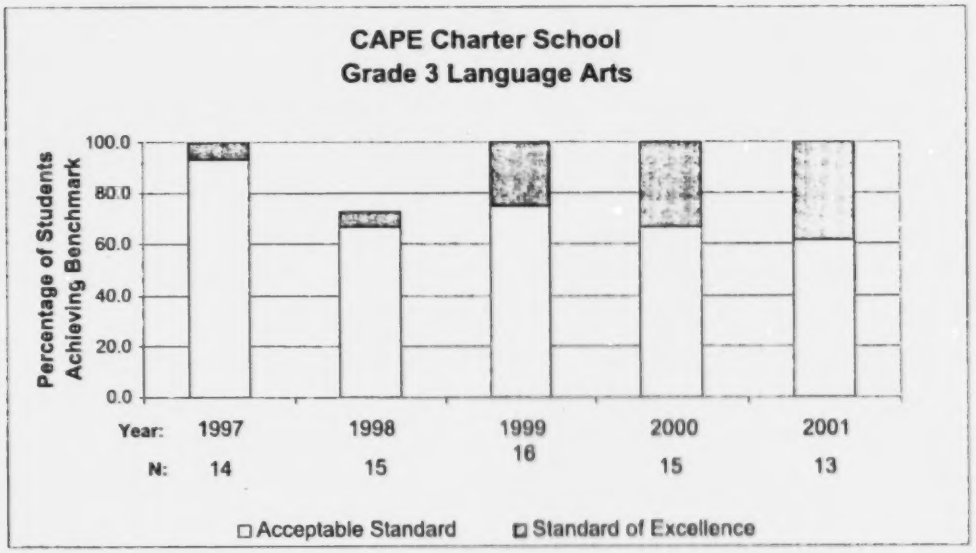
With the exception of 1998, the proportion of students at Aurora Charter School having met the *Acceptable Standard* or better on the Grade 3 Mathematics PAT has ranged from approximately 3% to 10% higher than the local jurisdictions and the province. In 1998 there were 5% to 8% fewer students from the school, relative to the local jurisdictions and the province, who were able to meet the *Acceptable Standard* or the *Standard of Excellence* on the PAT. At the Grade 6 level in mathematics, Aurora Charter School students consistently outperformed their counterparts in the local jurisdictions and the province in achieving the *Acceptable Standard* or the *Standard of Excellence*. In 1997, 2000, and 2001 all students at Aurora Charter School achieved the *Acceptable Standard* or the *Standard of Excellence* in Grade 6 Mathematics. At the Grade 9 level (first offered in 1998) on the Mathematics PAT Aurora Charter School students once again outperformed their peers in the local jurisdictions and the province. From 1998 to 2001, between 10% to 15% more Aurora Charter School students were able to meet the *Acceptable Standard* or the *Standard of Excellence* than students from the province or the local Edmonton jurisdictions.

In Science at the Grade 6 level, 87% to 95% of students from Aurora Charter School were able to achieve the *Acceptable Standard* or the *Standard of Excellence* between 1997 and 2001. These rates are considerably greater than those for the local jurisdictions and the province. At the Grade 9 level in Science the pattern is repeated, with Aurora Charter School students consistently outperforming their local and provincial counterparts by 6% to 16% in terms of those attaining the *Acceptable Standard* and the *Standard of Excellence*.

In Social Studies, Grade 6 students from Aurora Charter School did considerably and consistently better than students from the province and the local jurisdictions with approximately 95% to 100% of students achieving the *Acceptable Standard* or better. The proportion of students achieving the *Acceptable Standard* or better in 1998 (first year for the Grade 9 curriculum) was approximately 5% to 10% lower than the local jurisdictions and the province. The following year (1999) a greater proportion of students than the comparison districts and the province achieved the *Acceptable Standard* or better. In 2001, 100% of students met the *Acceptable Standard* or the *Standard of Excellence*.

CENTRE FOR ACADEMIC AND PERSONAL EXCELLENCE CHARTER SCHOOL (CAPE)

Figures 3-53 to 3-62 provide information regarding the percentages of students in CAPE Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subjects.



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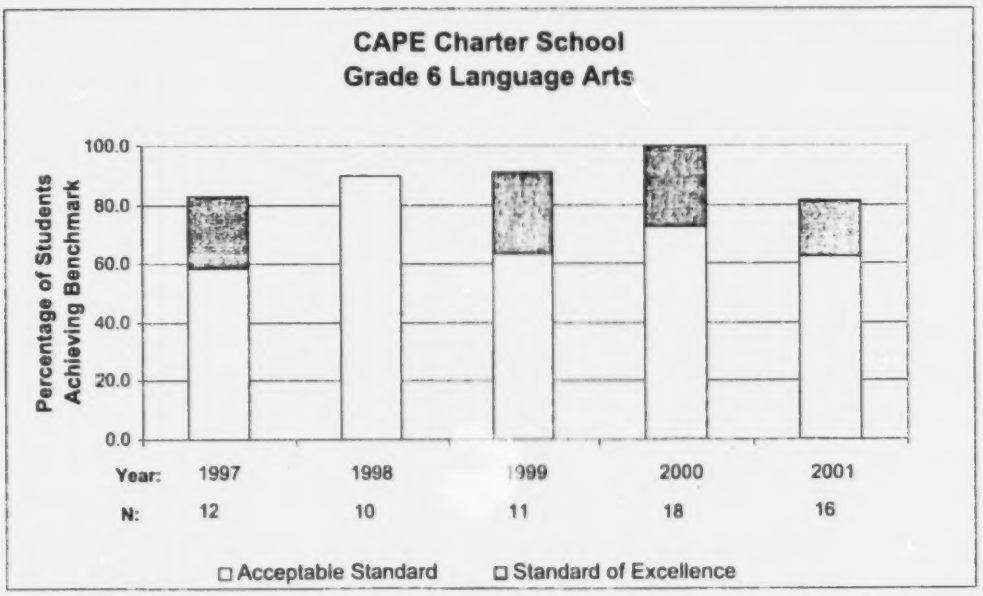

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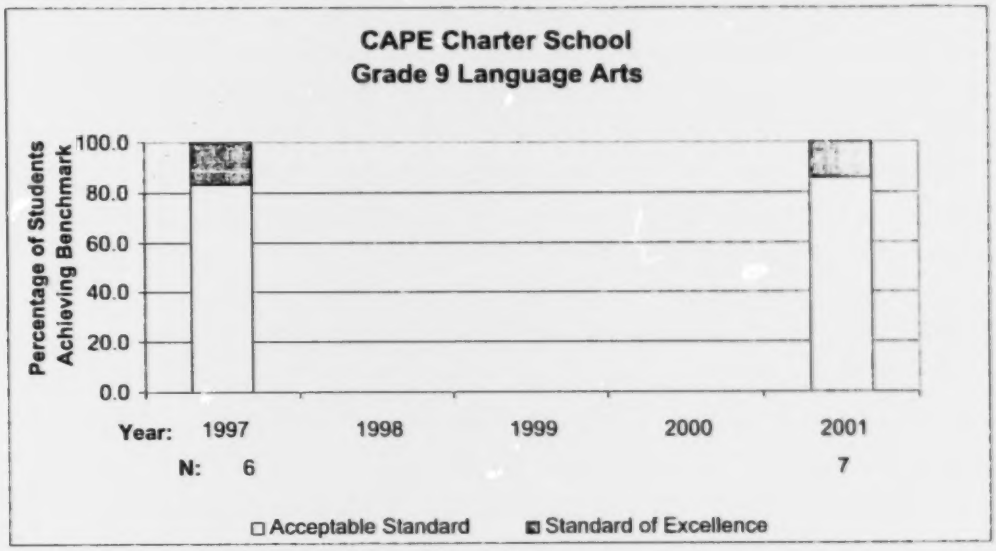

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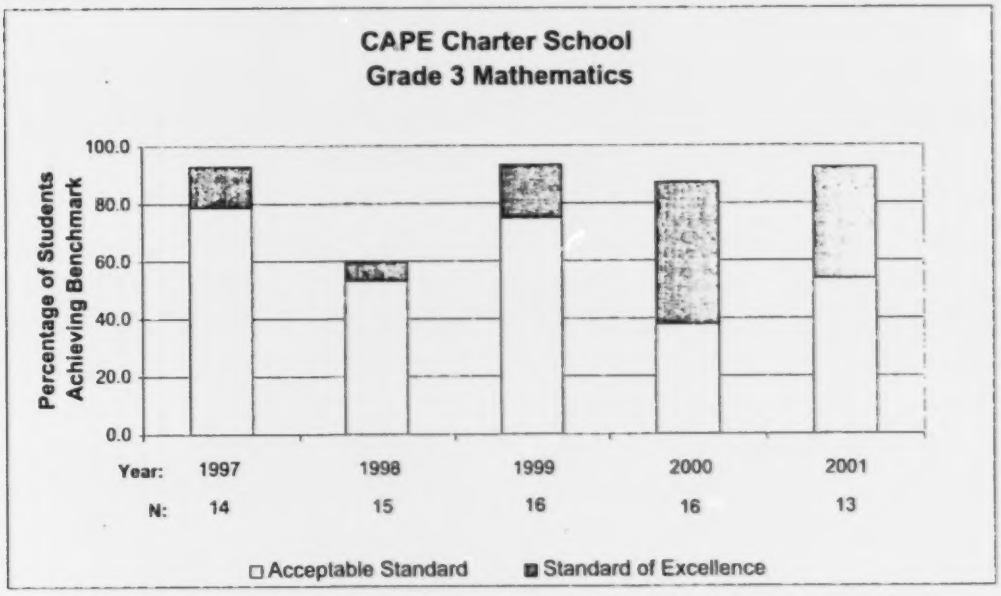

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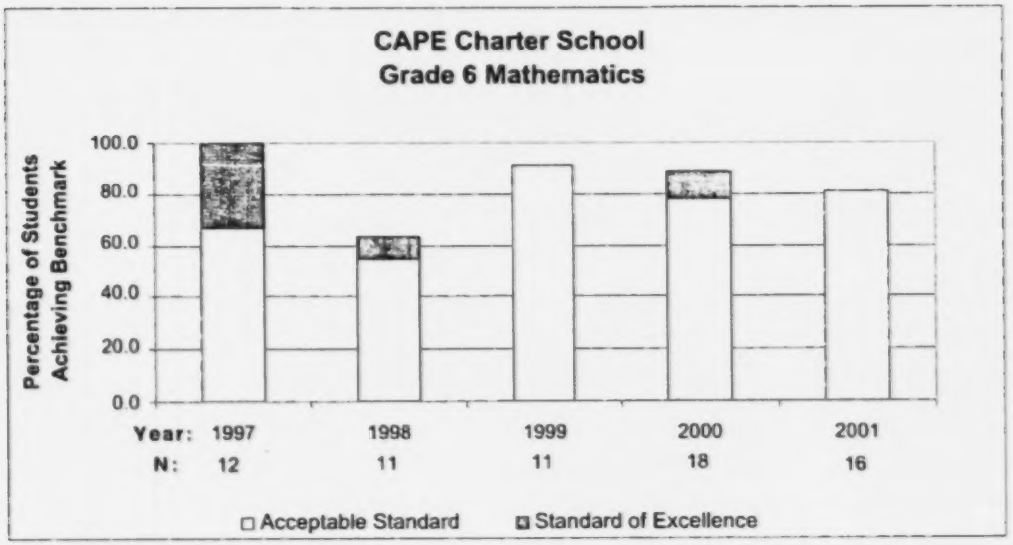

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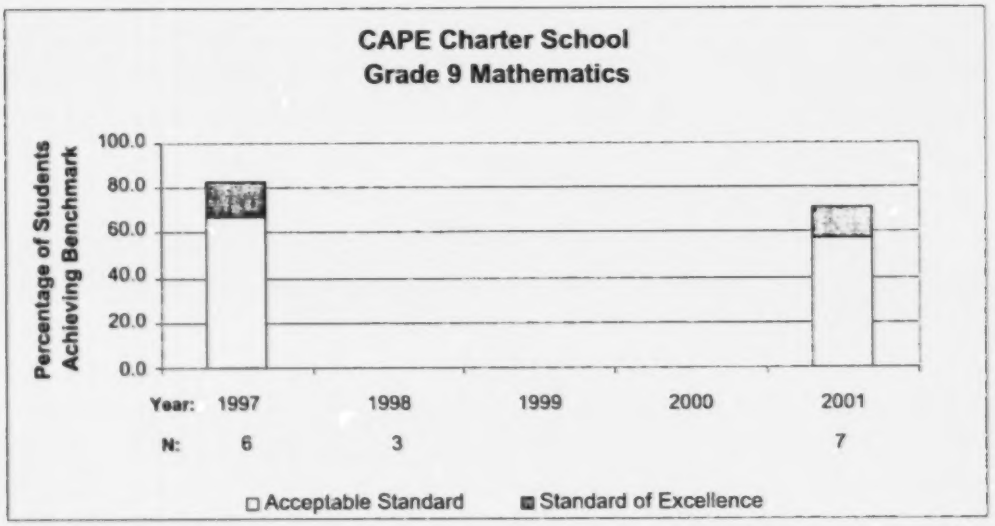

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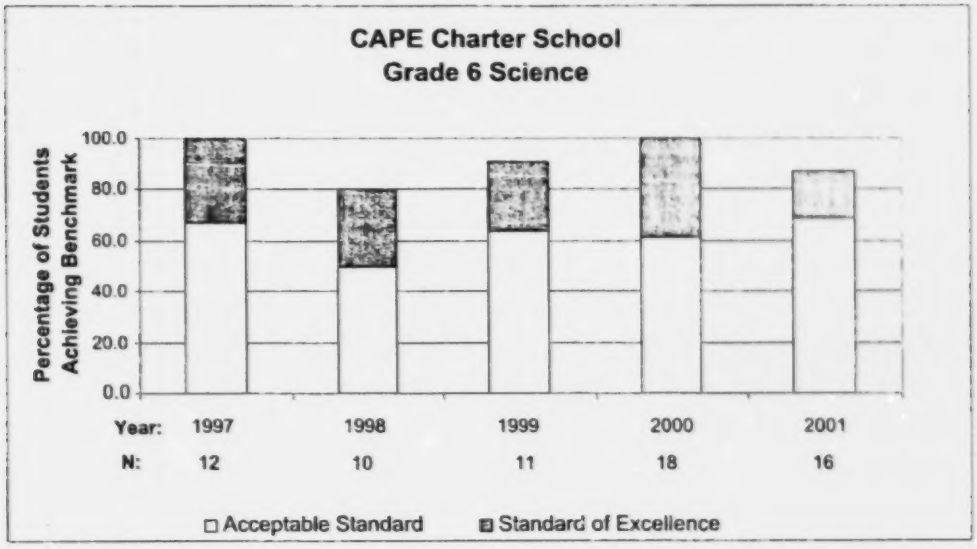

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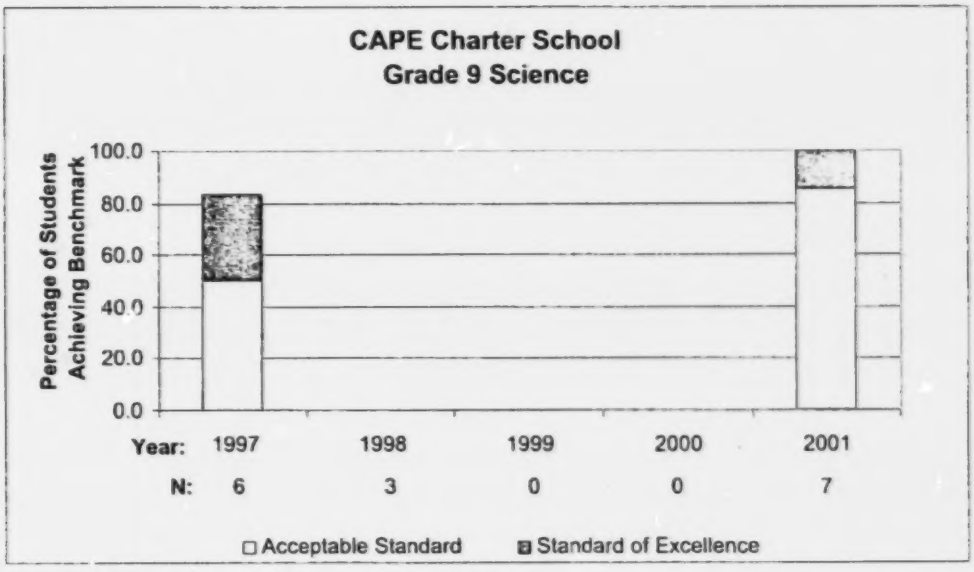

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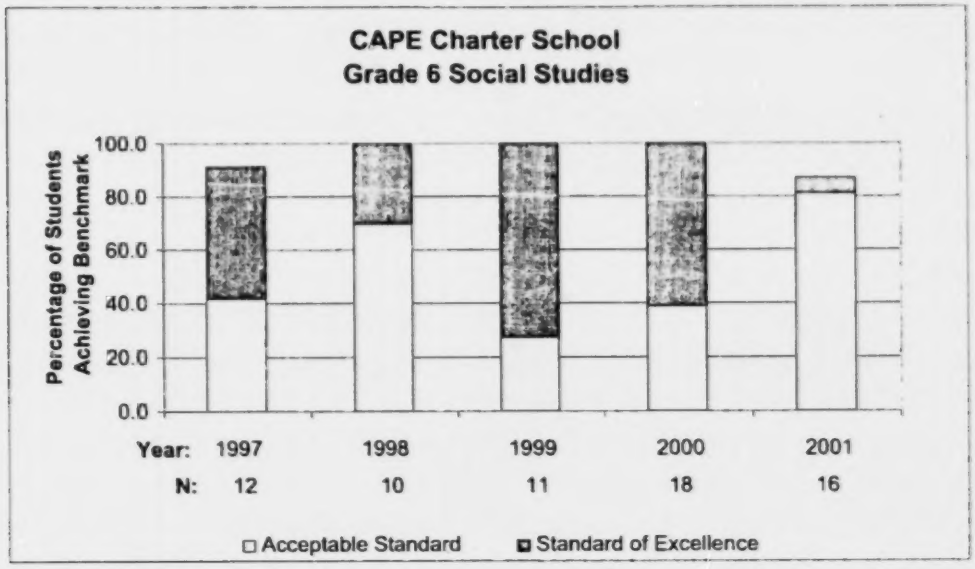

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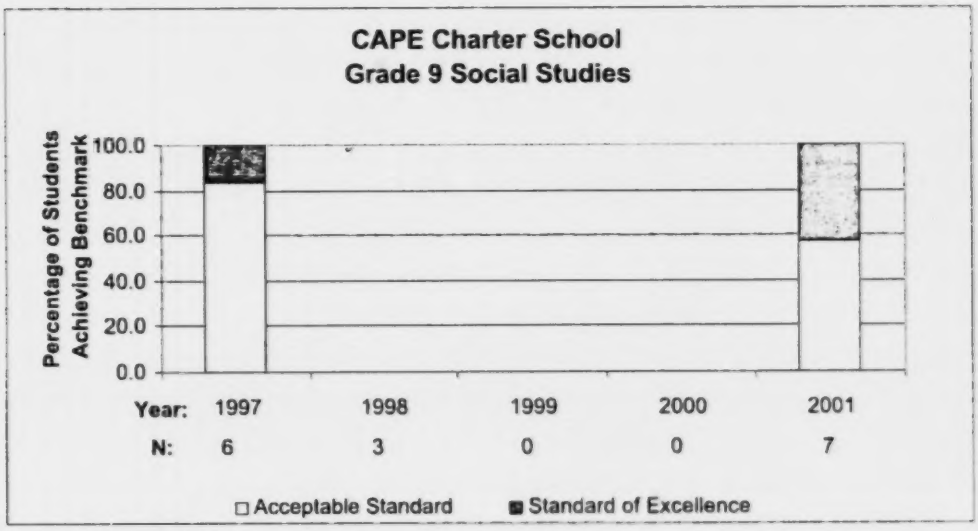
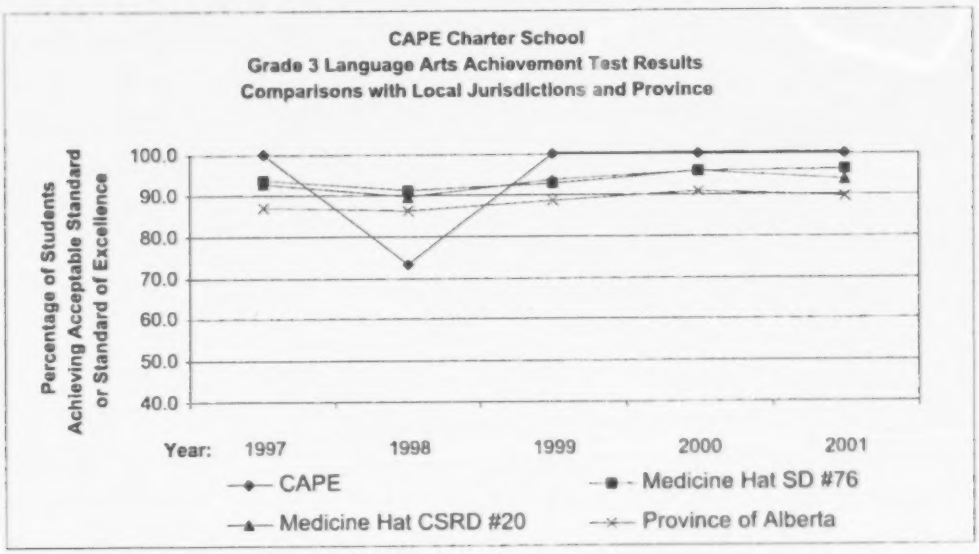


Figure 3-62

Figures 3-63 to 3-69 provide us with comparisons of the percentages of students in CAPE Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.



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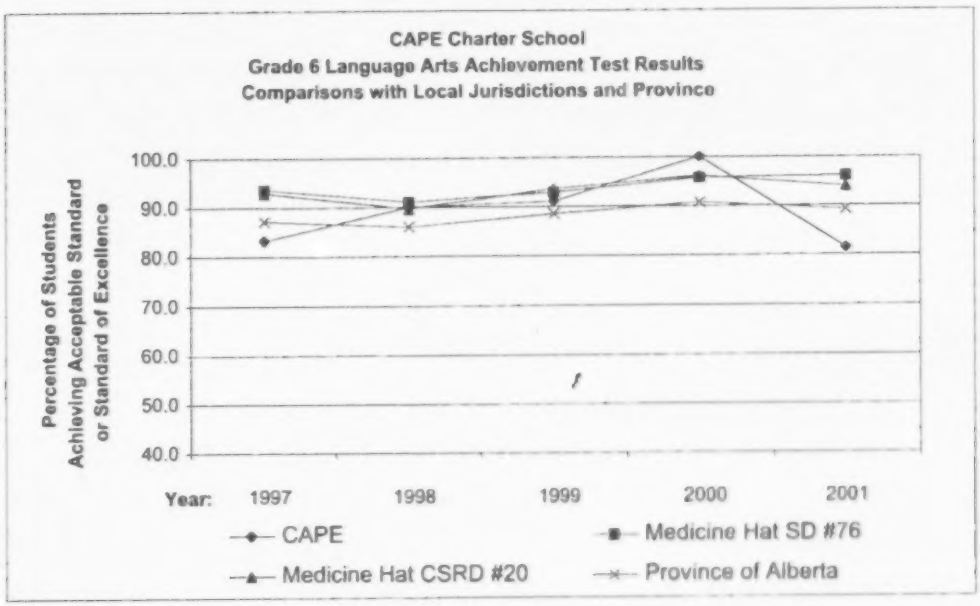

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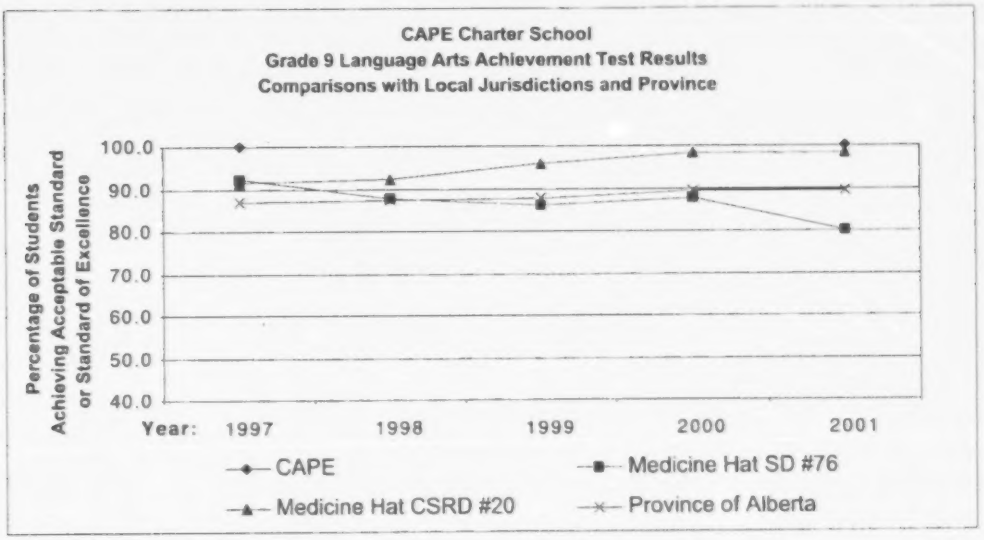

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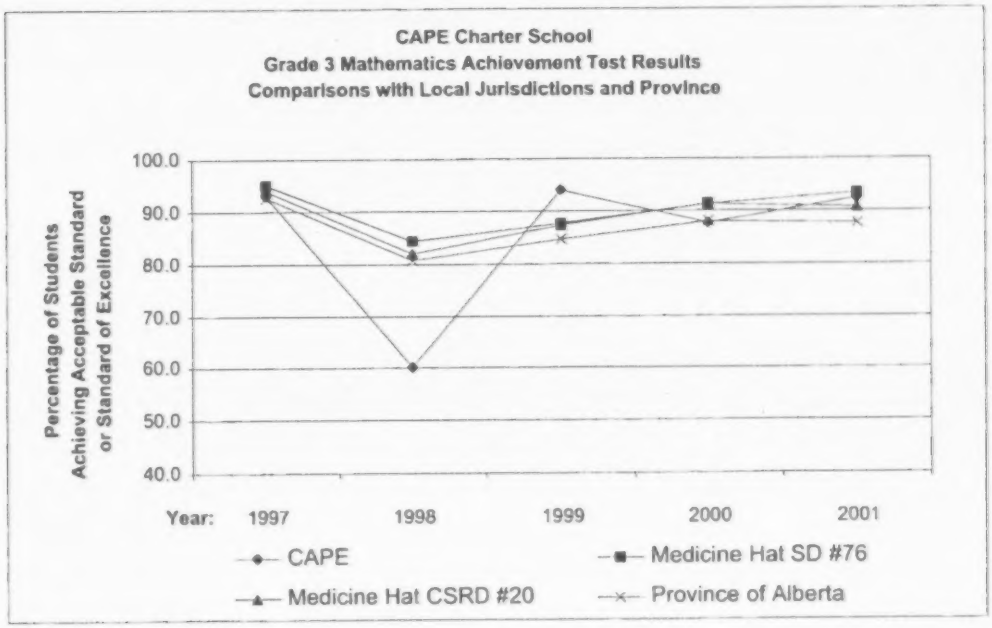

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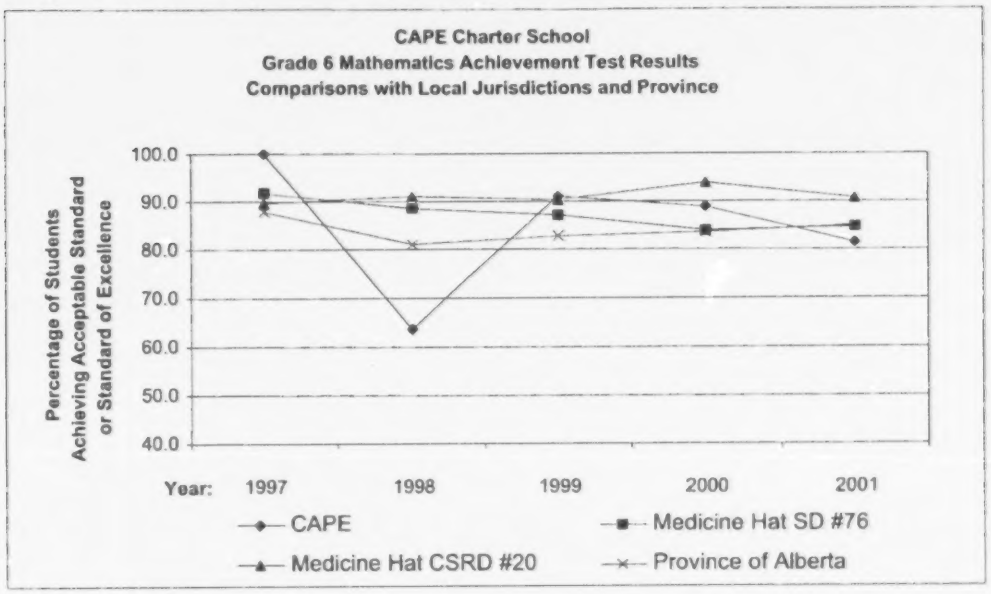
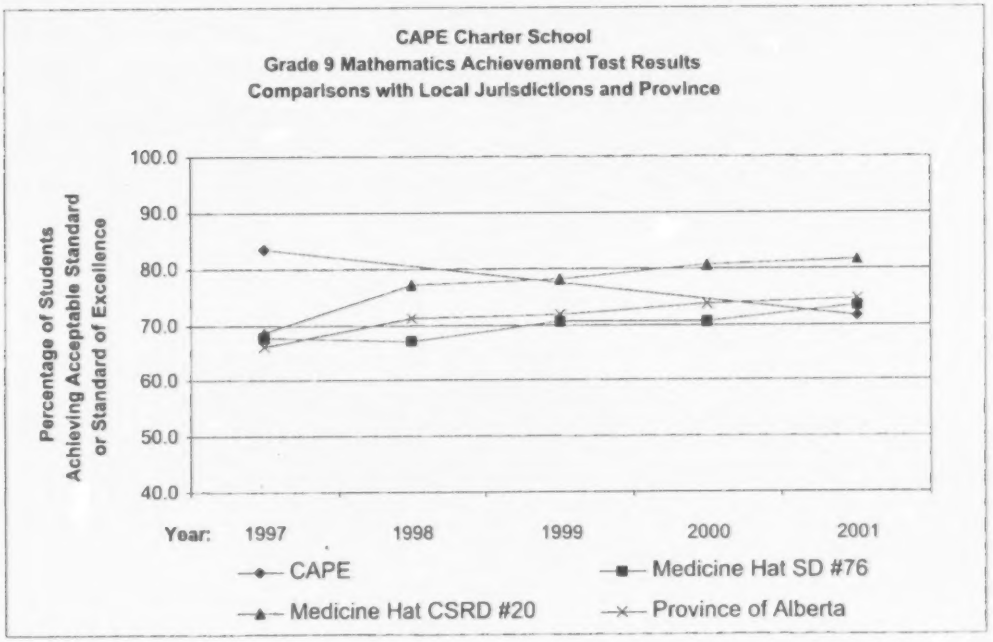


Figure 3-67



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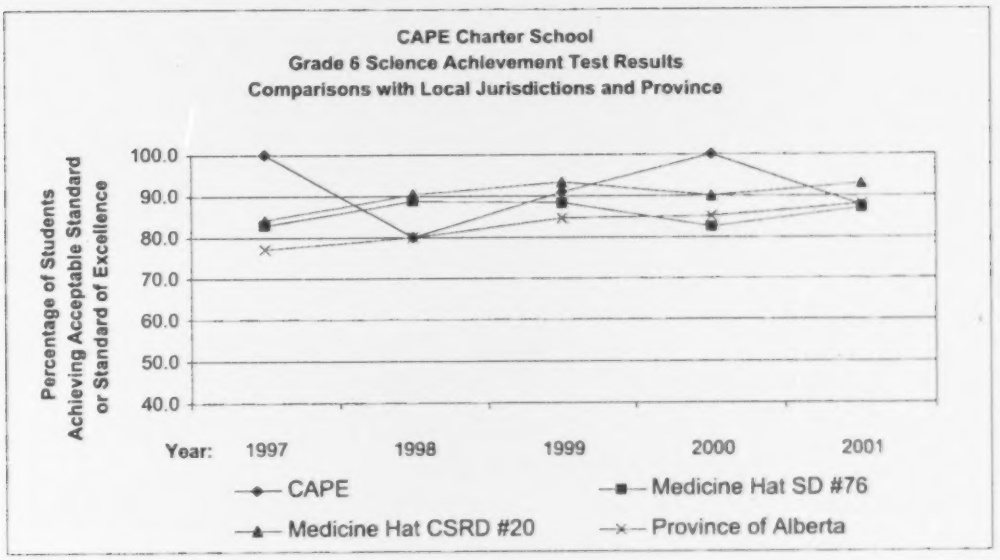


Figure 3-69

Interpretation of the Data for CAPE

As with other charter schools emphasizing academic excellence, CAPE students have performed very well on PATs relative to students in the local jurisdictions (Medicine Hat SD #76 and Medicine Hat CSRD #20) and the province.

With the exception of the 1998 school year, 100% of Grade 3 students writing the Language Arts PAT have achieved at the *Acceptable* or *Excellence* levels. 1998 was an anomaly with approximately 10% fewer students than the provincial average (which was lower than the levels attained by both local jurisdictions) able to achieve the *Acceptable Standard* or the *Standard of Excellence*. At the Grade 6 level in Language Arts the proportion of students achieving the *Acceptable Standard* or better has varied from slightly below to slightly above the levels of attainment in the comparison districts and the province. At the Grade 9 level, only two years of data exist for CAPE. In both of these years, 1997 and 2001, 100% of students achieved the *Acceptable Standard* or better.

Grade 3 Mathematics PAT achievement by students at CAPE were comparable to that of their peers in the local jurisdictions and the province in all years except 1998, when approximately 20% fewer students the provincial average achieved the *Acceptable Standard* or better. A similar pattern presented itself with the Grade 6 Mathematics PAT. With the exception of 1998, when approximately 16% fewer students than the provincial average achieved the *Acceptable Standard* or better, approximately the same proportions of students from CAPE as their local and provincial peers achieved the *Acceptable Standard* or better. At the Grade 9 level in Mathematics, 1997 data, approximately 17% more CAPE students than

local and provincial peers achieved the *Acceptable Standard* or better. This figure was slightly lower for CAPE students than for local and provincial students when examining the 2001 data.

In 1997 and 2000, 100% of students at CAPE achieved the *Acceptable Standard* or better on the Grade 6 Science PAT. In all other years of operation, proportions of students achieving the *Acceptable Standard* or better were similar to the comparison districts and the province. On the Grade 9 Science PAT in 1997, 83% of students at CAPE achieved the *Acceptable Standard* or better. This was very similar to Medicine Hat SD #76, slightly lower than Medicine Hat CSRD #20, but slightly higher than the percentage achieving the Standard in the province. In 2001, the only other year CAPE offered Grade 9 curriculum, 100% of students achieved the *Acceptable Standard* or better – thus outperforming the local jurisdictions and the province.

All students reached the *Acceptable Standard* or better on the Grade 6 Social Studies PAT in 1998, 1999, and 2000. This past year approximately 88% of students achieved the *Acceptable Standard* or better. This figure is very similar to that obtained by Medicine Hat CSRD #20 and slightly higher than the province and Medicine Hat SD #76. For 1997 and 2000 at the Grade 9 level, 100% of students achieved the *Acceptable Standard* or better.

FOUNDATIONS FOR THE FUTURE CHARTER SCHOOL

Figures 3-70 to 3-79 provide information regarding the percentages of students in Foundations for the Future Charter School reaching the *Acceptable Standard*s and the *Standard of Excellence* in the specified grades and subjects.

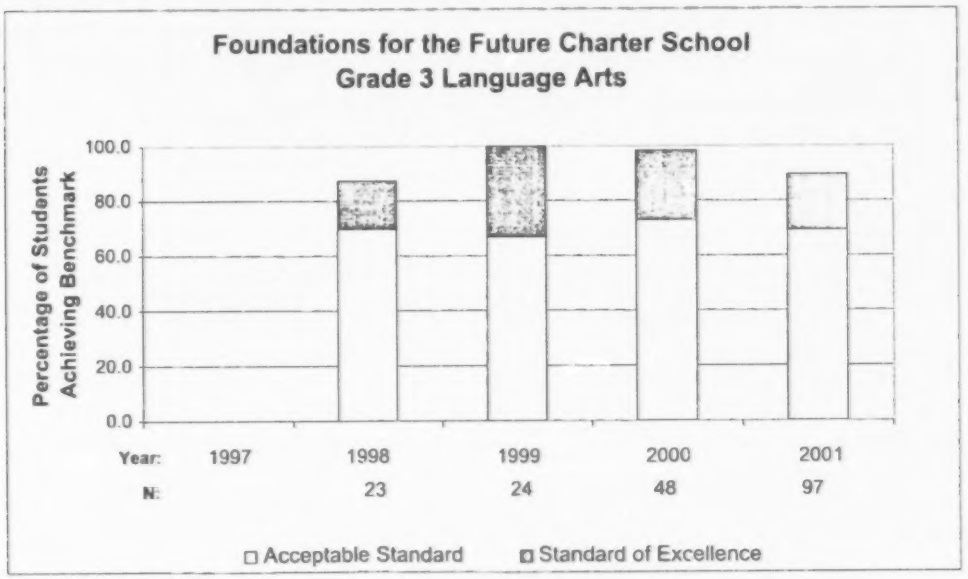


Figure 3-70

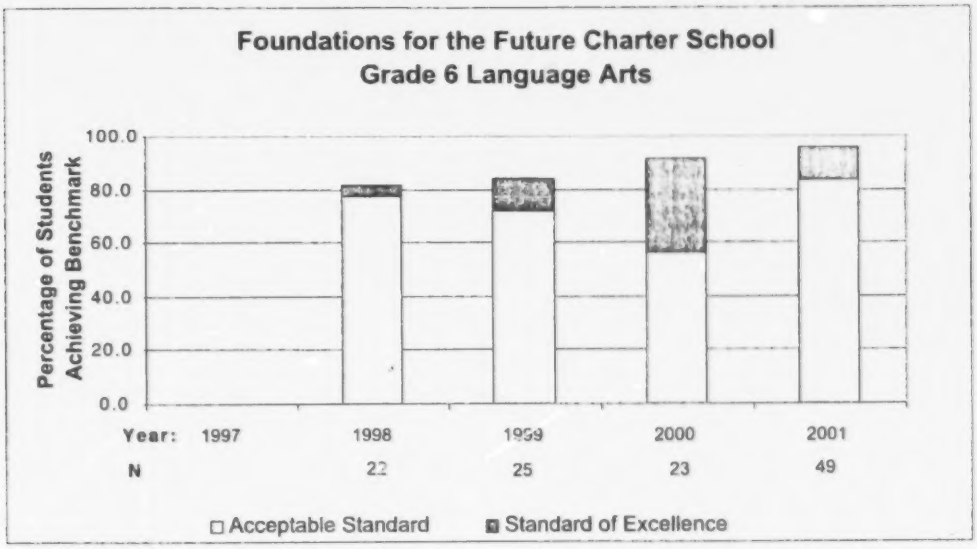
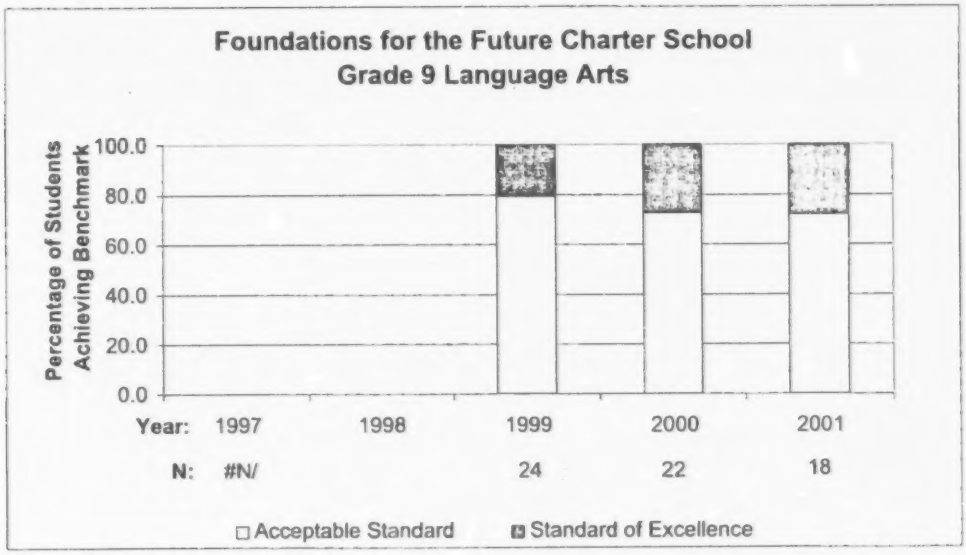


Figure 3-71



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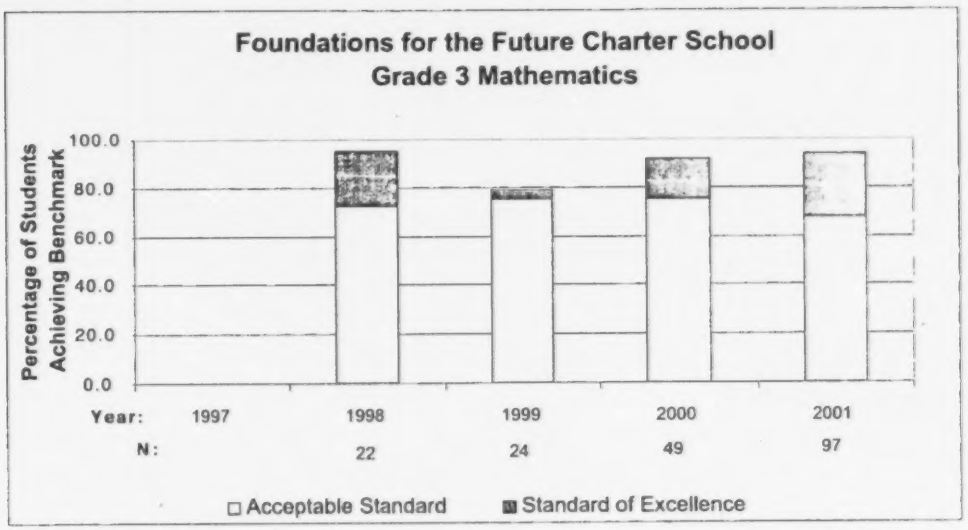

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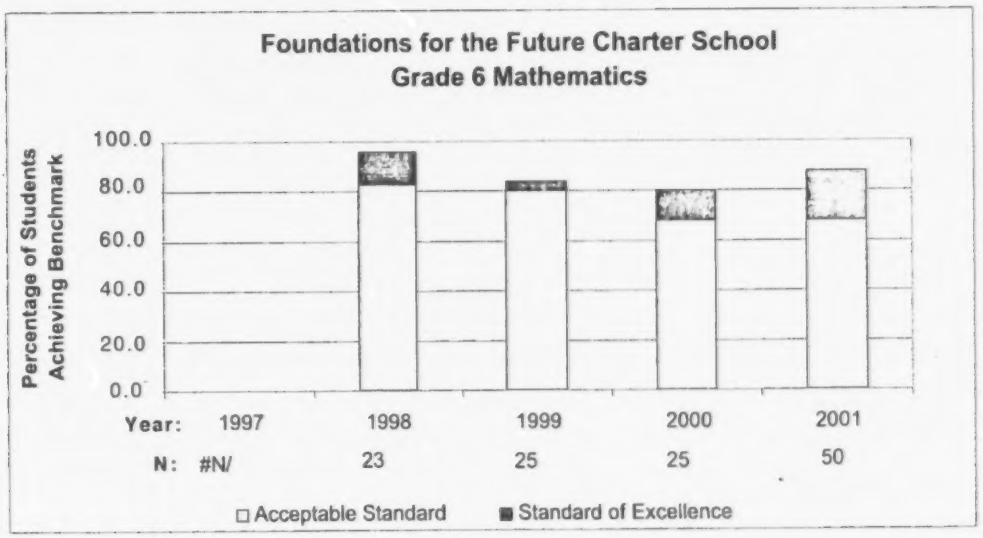
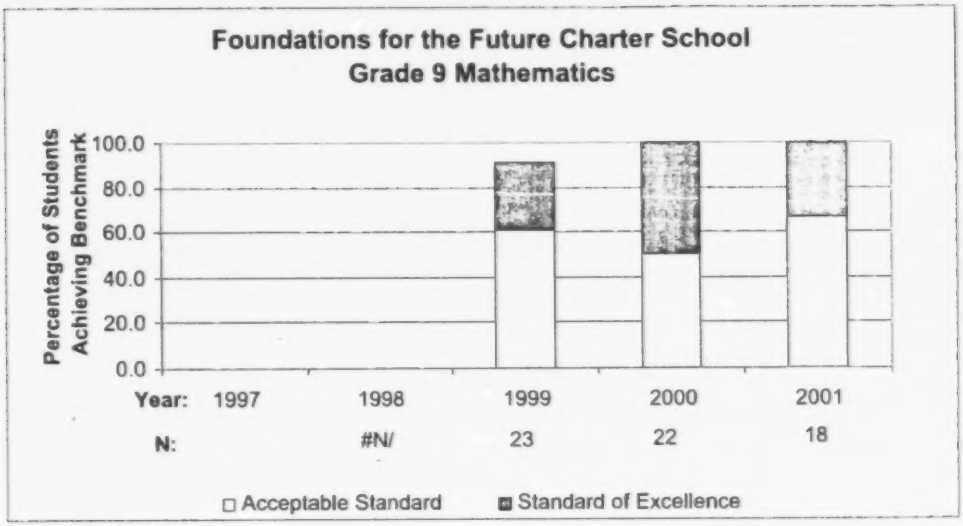


Figure 3-74



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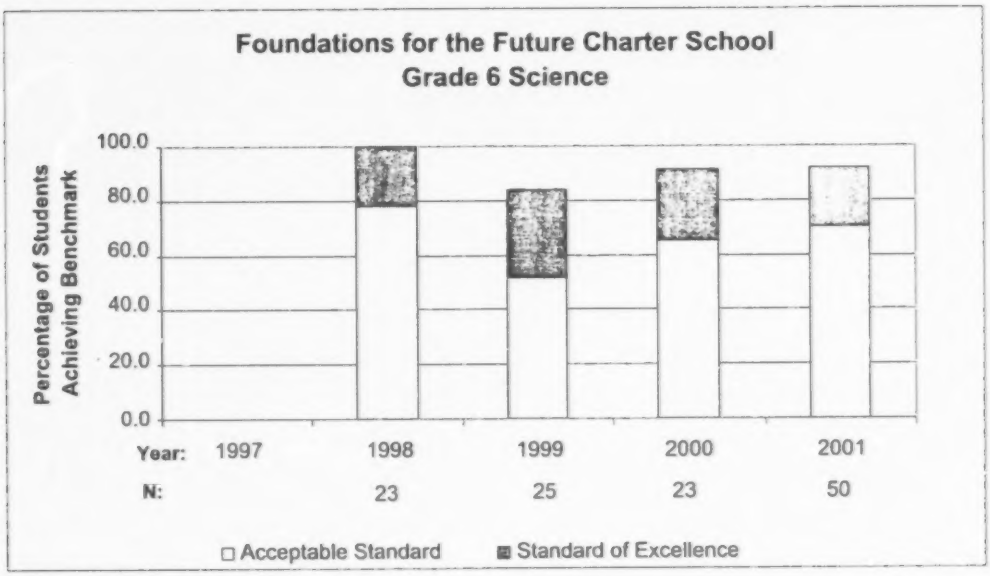

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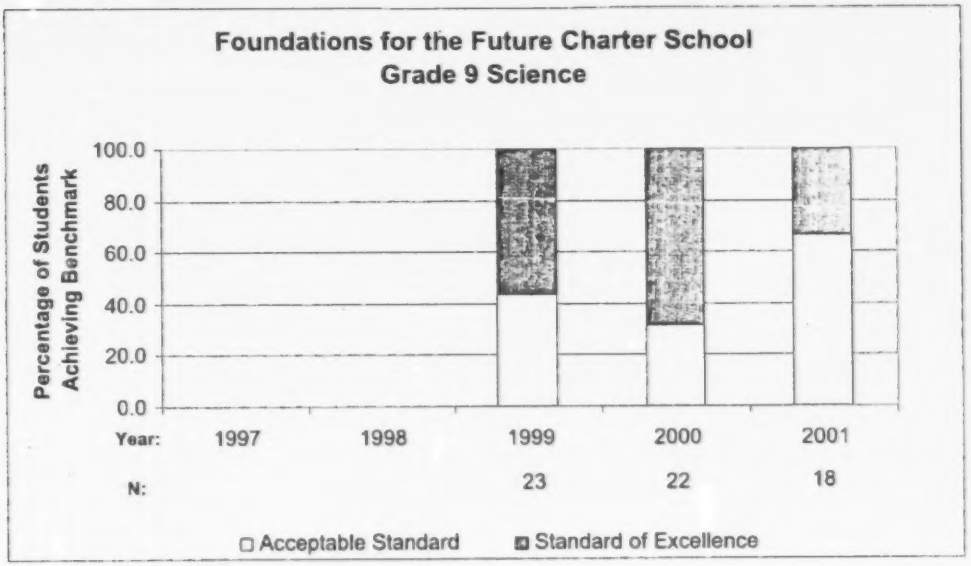

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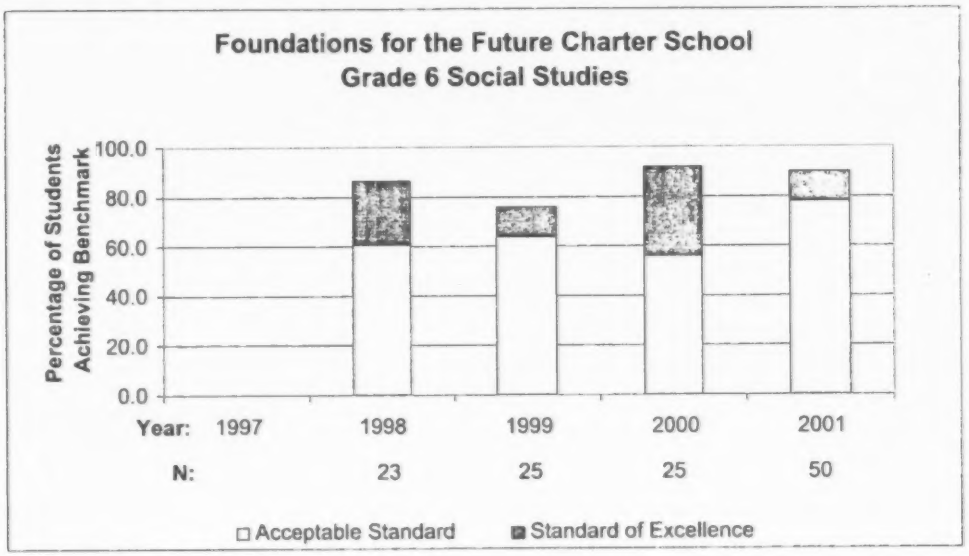

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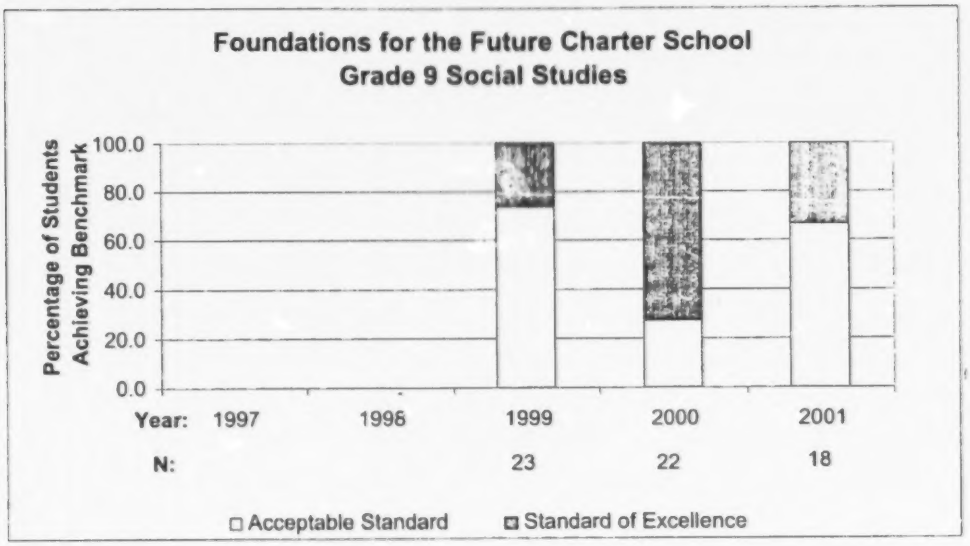


Figure 3-79

Figures 3-80 to 3-88 provide us with comparisons of the percentages of students in Foundations For The Future Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.

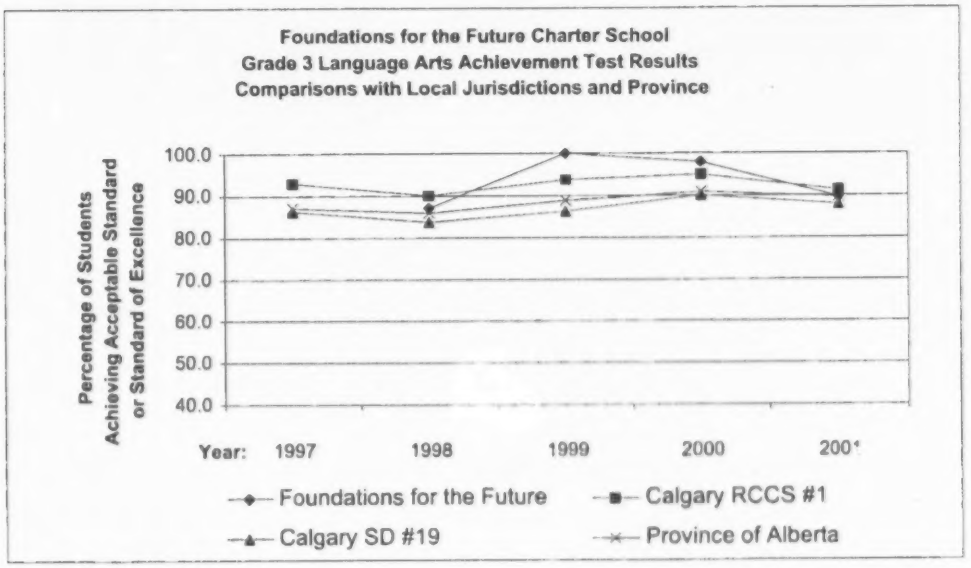
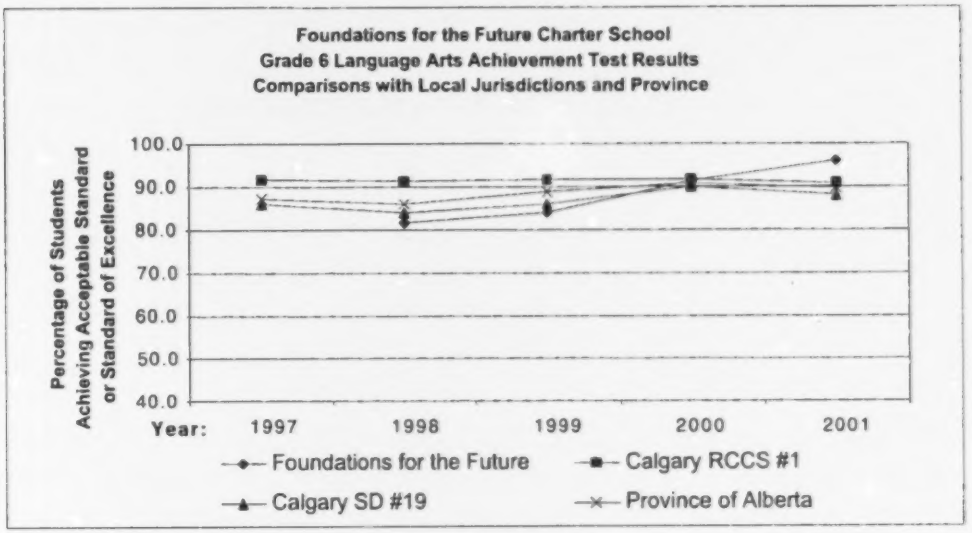


Figure 3-80



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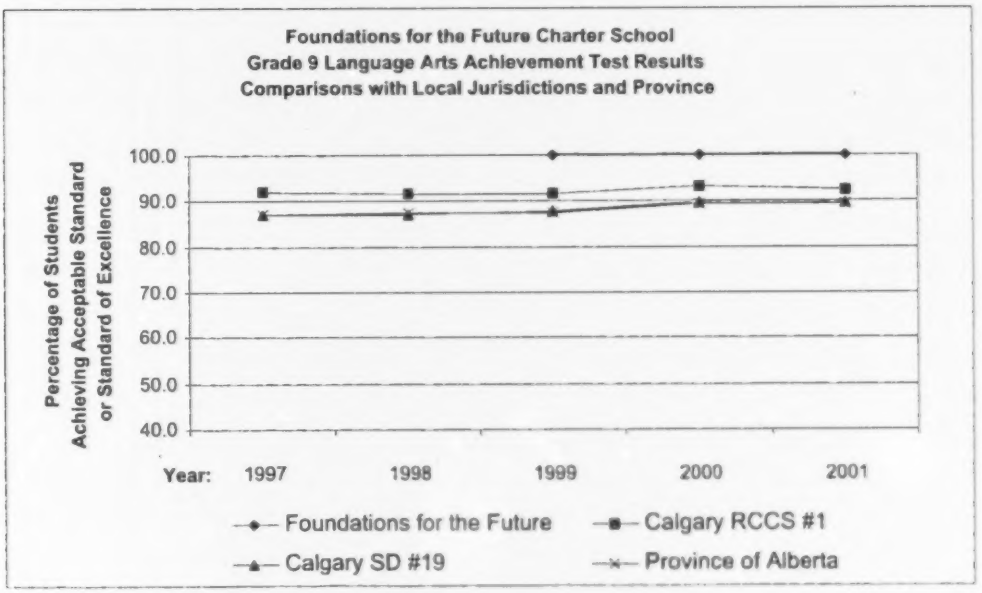

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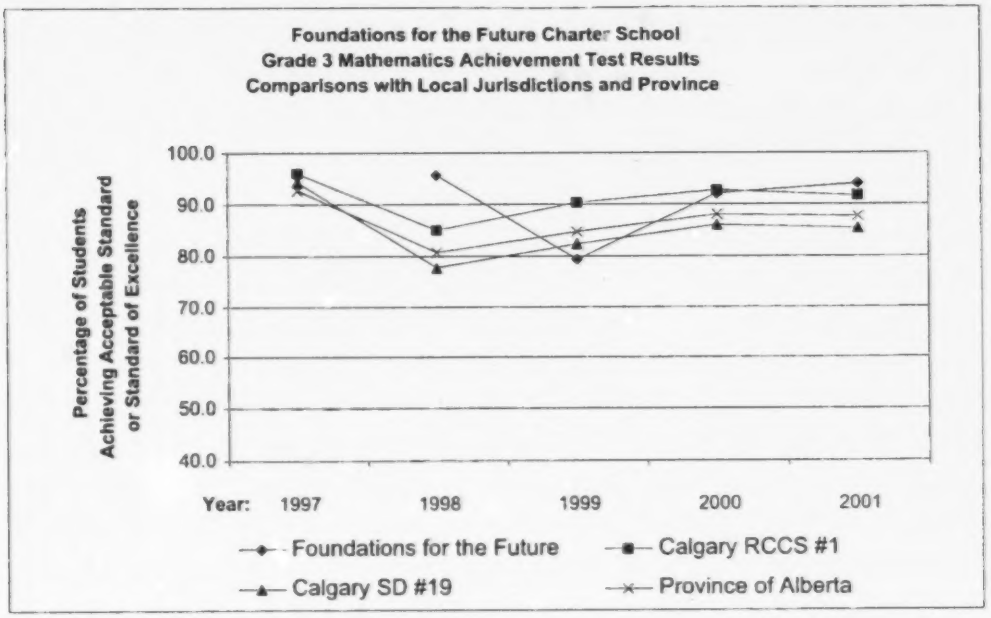

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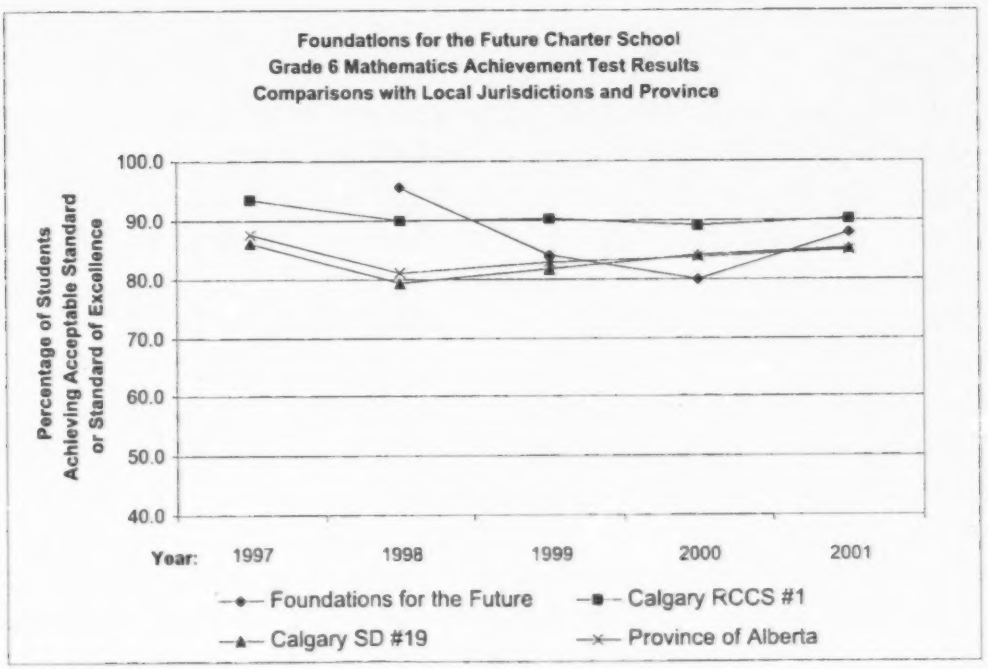

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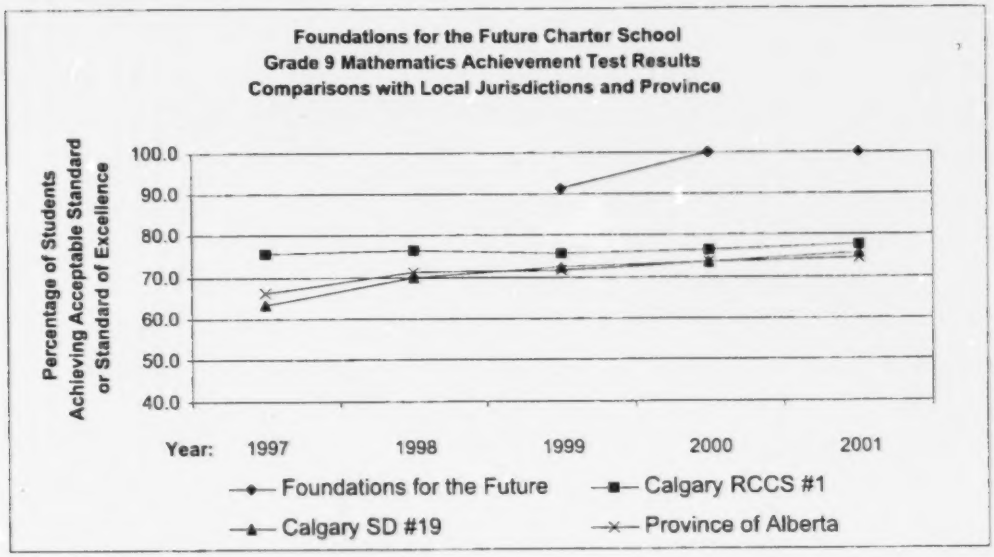

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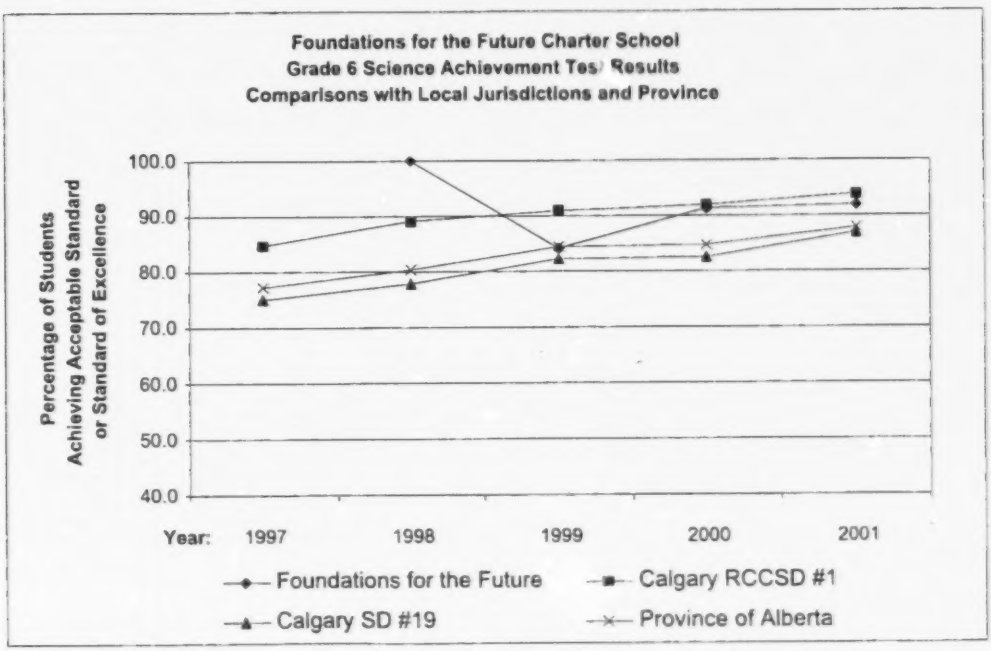
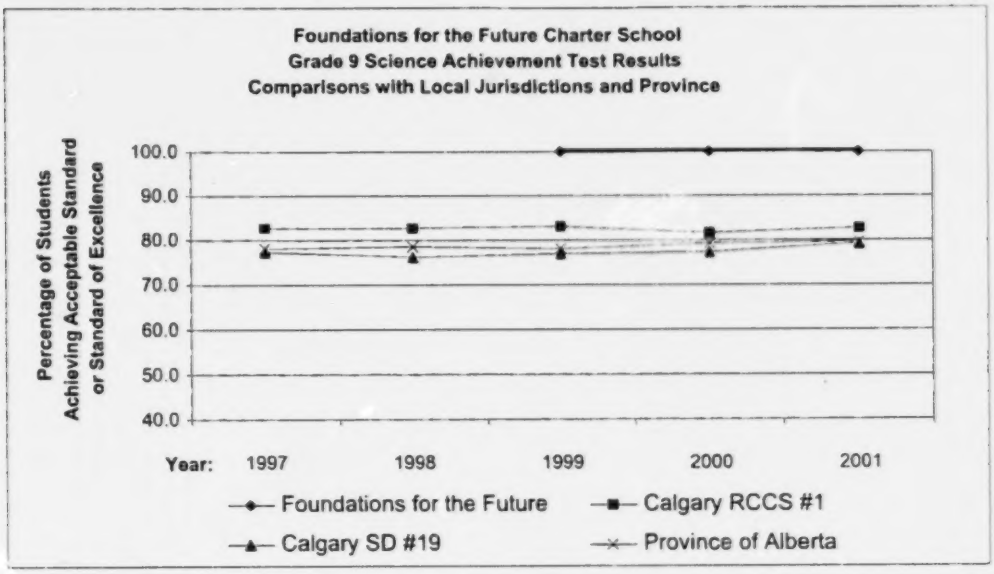


Figure 3-86



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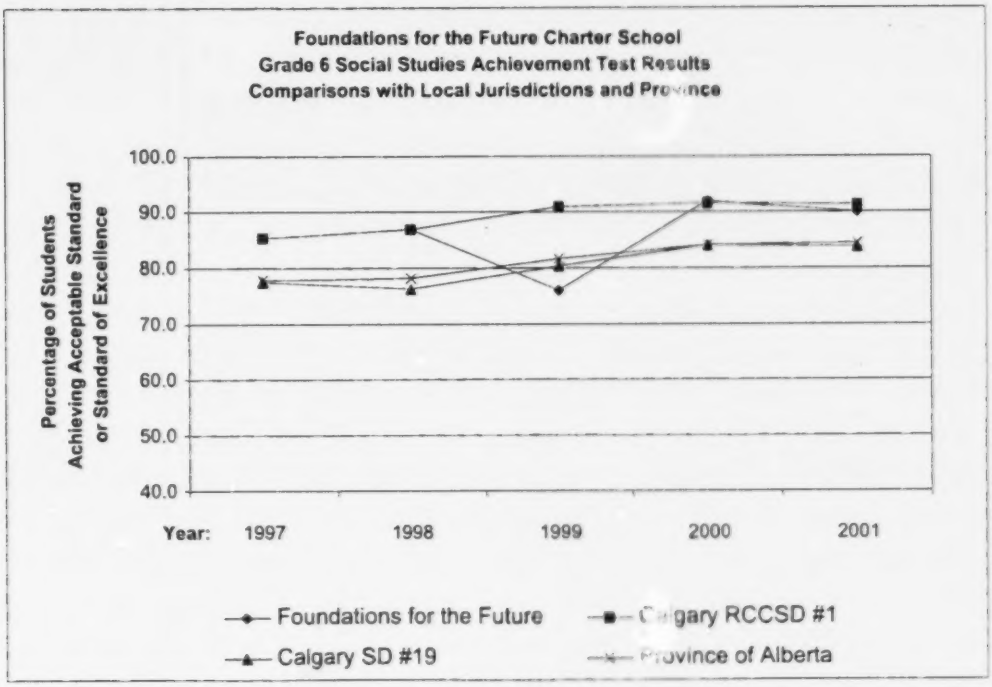


Figure 3-88

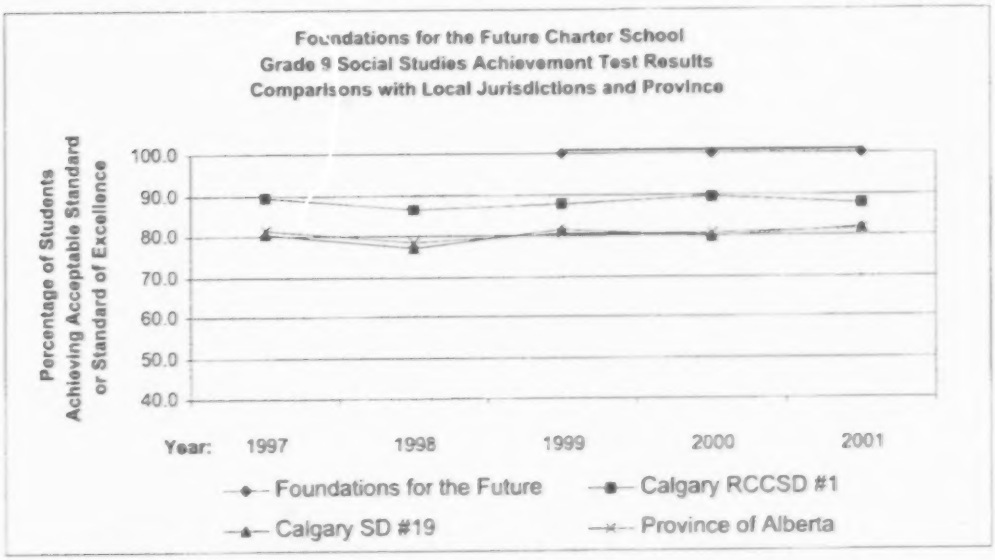


Figure 3-89

Interpretation of the Data for Foundations for the Future Charter School

The Foundations for the Future Charter School opened its doors in the fall of 1997, thus PAT data are only available from 1998 to 2001. As with the other charter schools with academic achievement at the core of their charter, Foundations for the Future Charter School compares very favourably with local jurisdictions (Calgary RCCSD #1 and Calgary SD #19) and the province on most PATs.

PAT data for Grade 3 Language Arts are approximately the same as or slightly better than comparison districts and the province in terms of the proportion of students achieving the *Acceptable Standard* or better. On the Grade 6 Language Arts PAT, the proportions of students achieving the *Acceptable Standard* or better are approximately the same or slightly higher than for the local and provincial comparison groups. However, the trend between 1998 and 2001 has been more positive than the comparison districts and province. During the three years (1999, 2000, 2001) that Foundations for the Future has offered Grade 9 curriculum, 100% of students have reached the *Acceptable* or *Excellence* benchmarks. This is approximately 10% higher than the comparison groups.

In 1998, on the Grade 3 Mathematics PAT, approximately 10% more Foundations for the Future students achieved the *Acceptable Standard* or better than the Calgary RCCSD #1 (which had outperformed the Calgary SD #19 and the province). The following year the comparison districts and the province outperformed, slightly, the proportion of students reaching the *Acceptable Standard* at Foundations for the Future Charter School. During the 2000 and 2001 school years, Foundations for the Future students had improved their per-

formance to levels comparable with Calgary RCCSD #1 (who did better than Calgary SD #19 and the province of Alberta). At the Grade 6 level on the Mathematics PAT, students from Foundations for the Future performed approximately the same as the local comparison districts and the province. At the Grade 9 level in Mathematics, Foundations for the Future students outperformed local jurisdictions and the province with 100% of students reaching the *Acceptable Standard* or the *Standard of Excellence* in 2000 and 2001.

After having 100% of its students achieve the *Acceptable Standard* or better in 1998 on the Grade 6 Science PAT, the proportion of Foundations for the Future students achieving at this level decreased to levels comparable to the province in 1999 and to that of Calgary RCCSD #1 (slightly higher than the province) in 2000 and 2001. At the Grade 9 level, 100% of Foundations for the Future students achieved the *Acceptable Standard* or the *Standard of Excellence* in 1999, 2000, and 2001. This is approximately 15% higher than Calgary RCCSD #1 (which outperformed the Calgary SD #19 and the province).

The proportion of students achieving the *Acceptable Standard* or better on the Grade 6 Social Studies PAT is virtually identical to that obtained by students in Calgary RCCSD #1 (which outperformed Calgary SD #19 and the province) in all years except 1999 when the comparison districts and the province had between 5% and 13% more students achieving at the *Acceptable Standard* or the *Standard of Excellence*. Standing out above all others were the students who wrote the Grade 9 Social Studies PAT in 1999, 2000, and 2001. All of these students, 100%, achieved the *Acceptable Standard* or better. This was 10% to 20% higher than the comparison districts and the province.

MOBERLY HALL CHARTER SCHOOL

Figures 3-90 to 3-99 provide information regarding the percentages of students in Moberly Hall Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subjects.

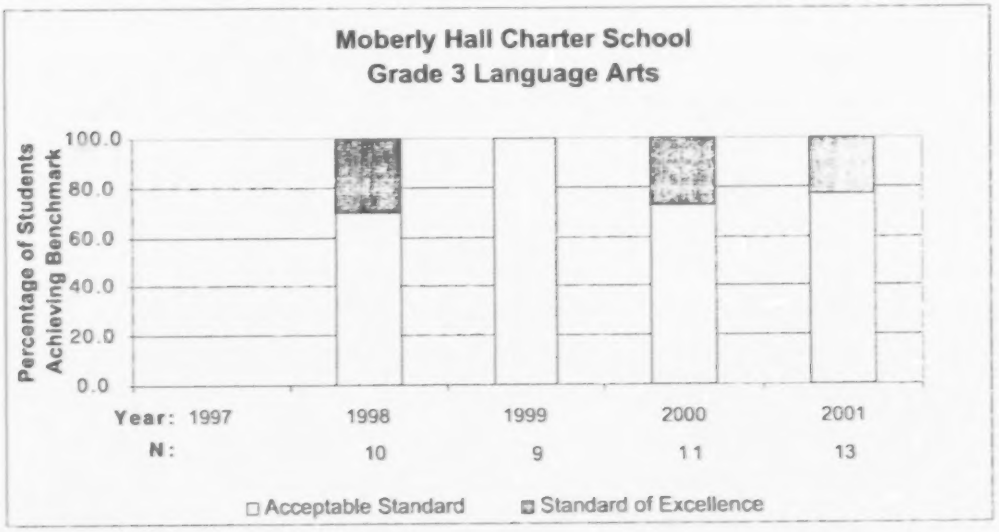


Figure 3-90

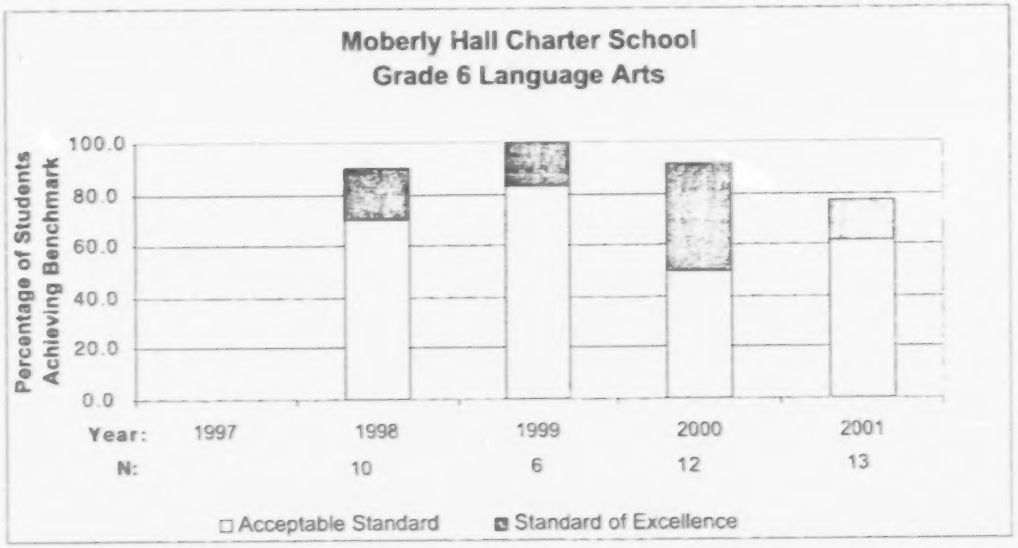


Figure 3-91

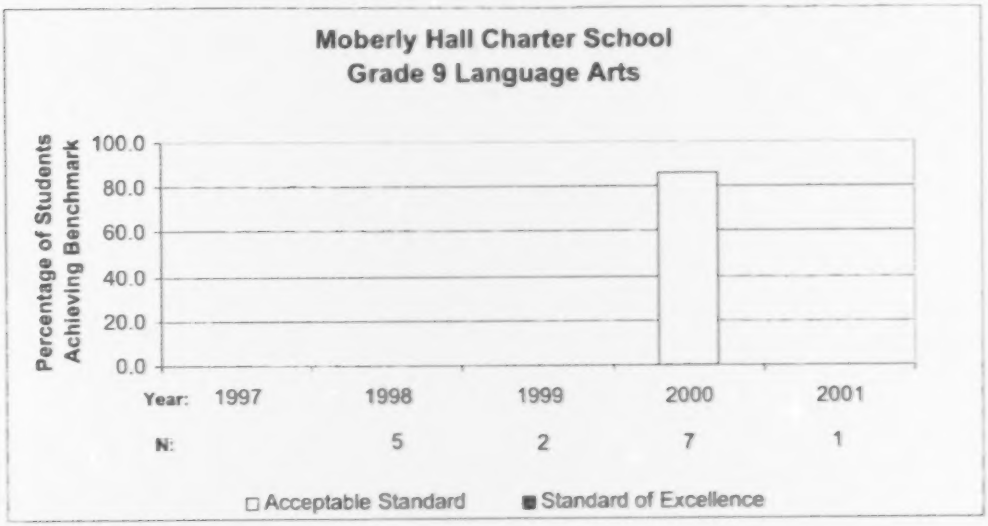
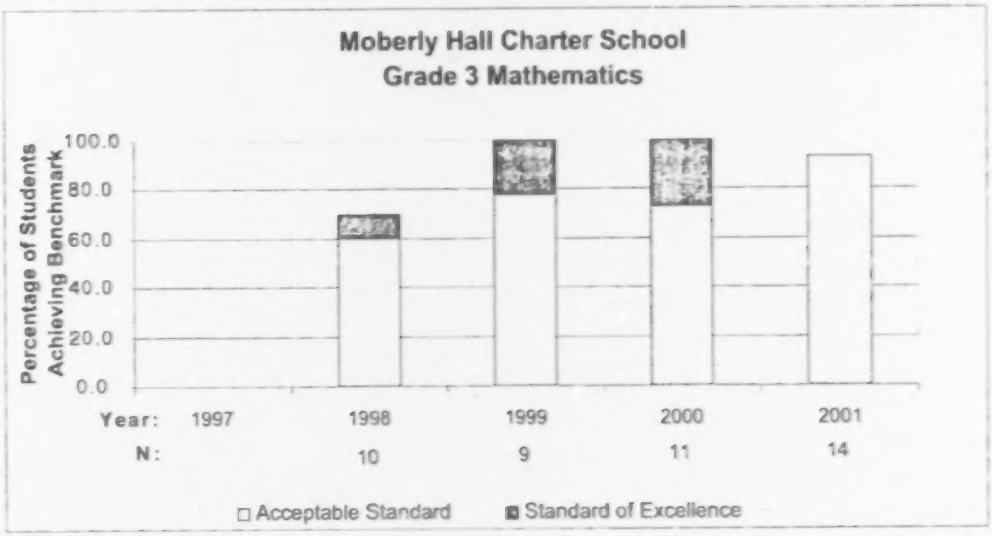


Figure 3-92



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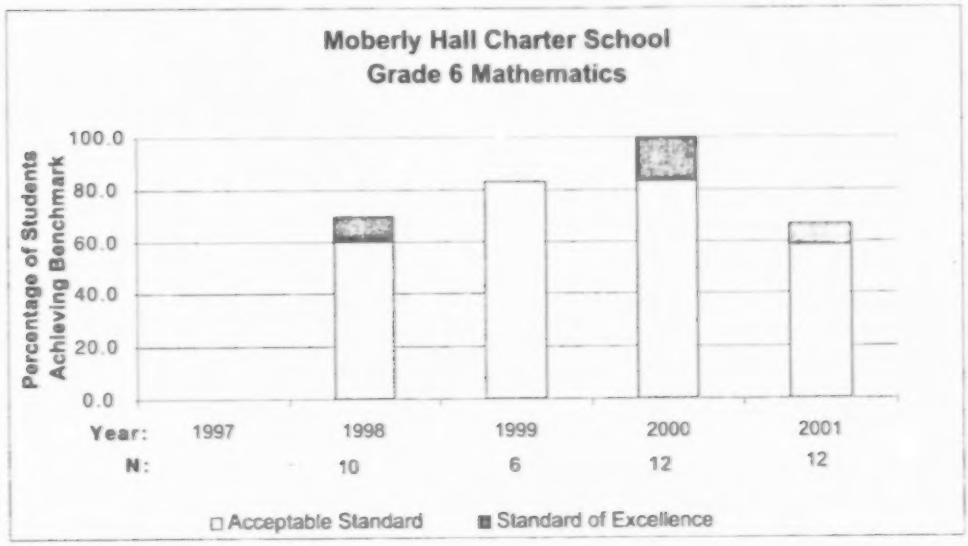

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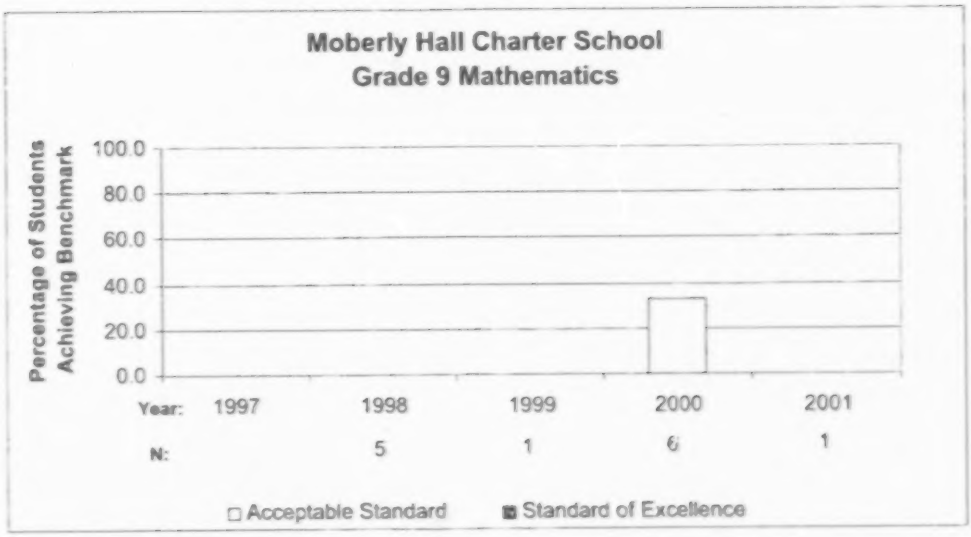

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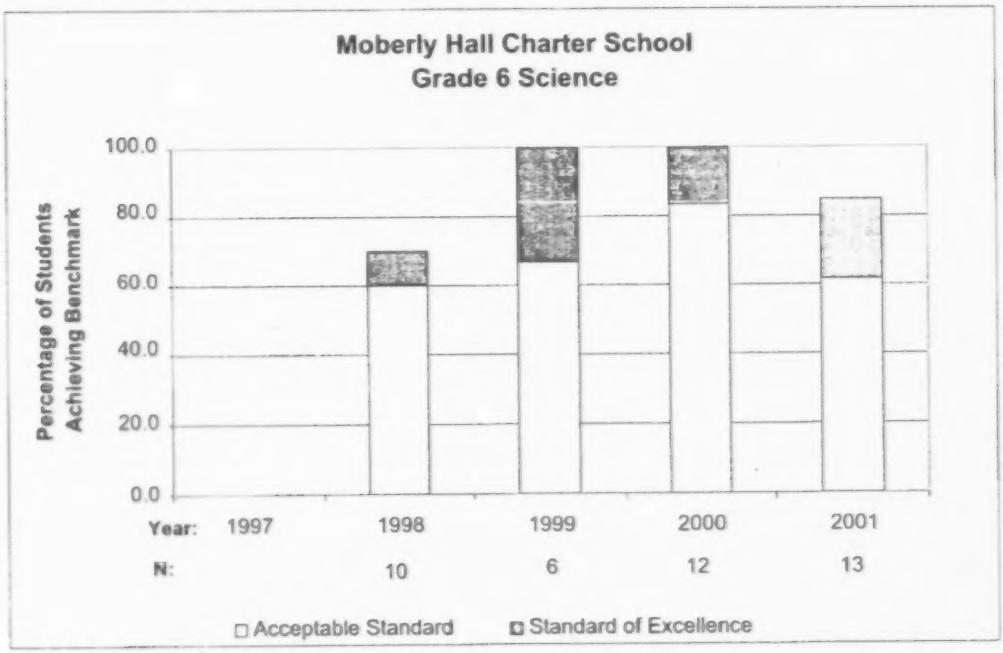

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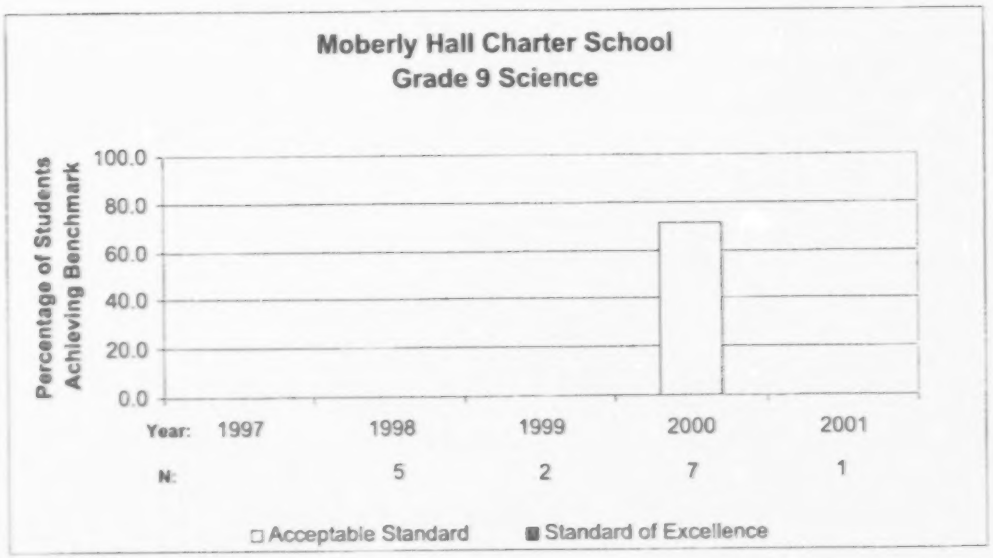

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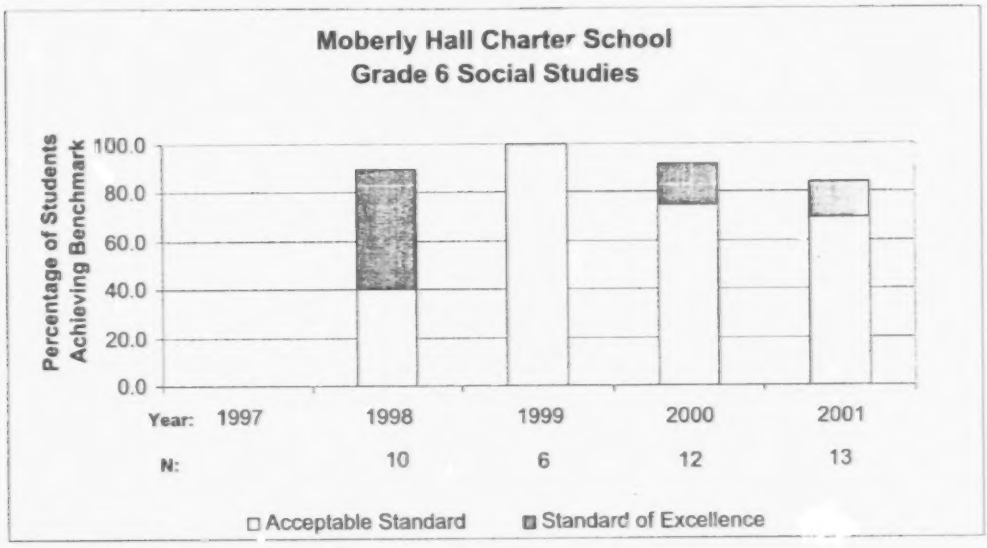

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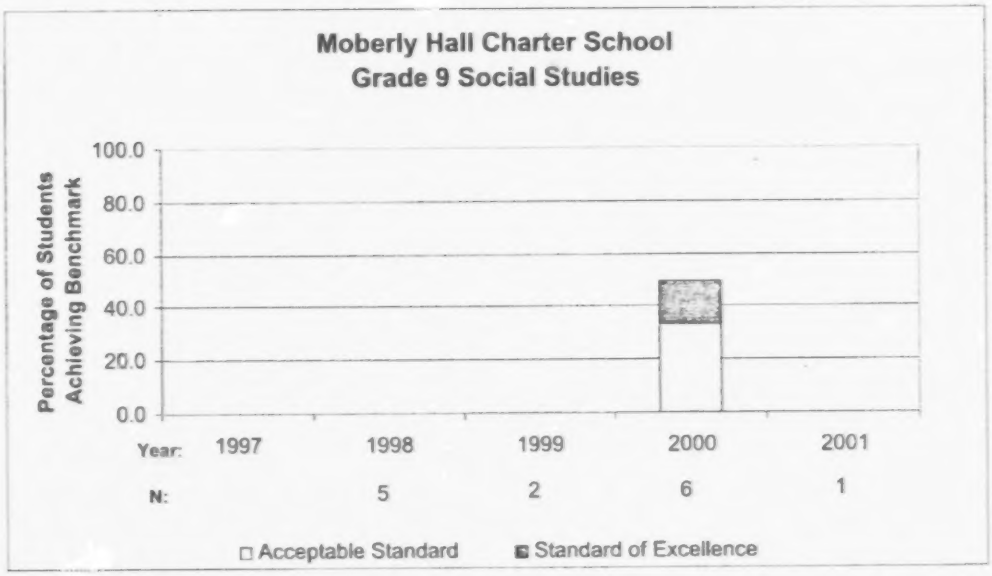
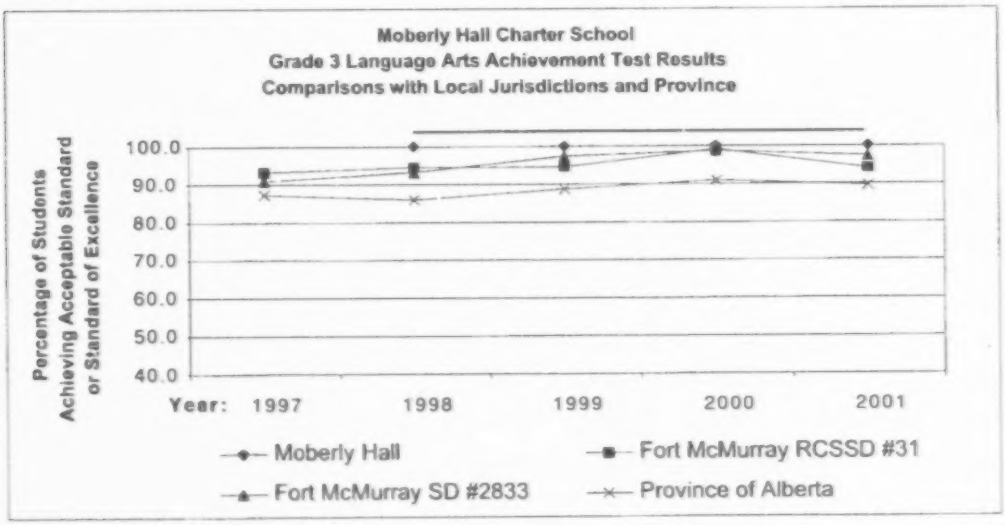


Figure 3-99

Figures 3-100 to 3-108 provide us with comparisons of the percentages of students in Moberly Hall Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.



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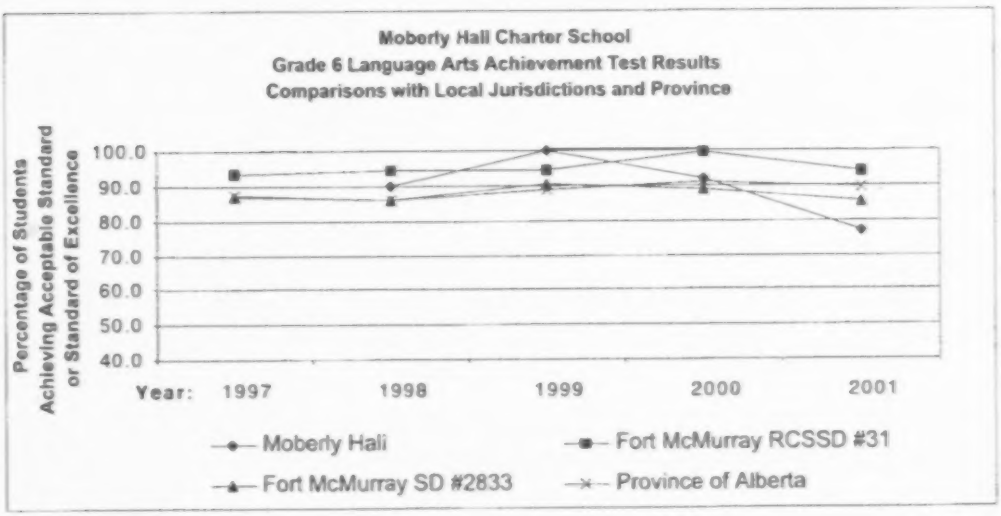

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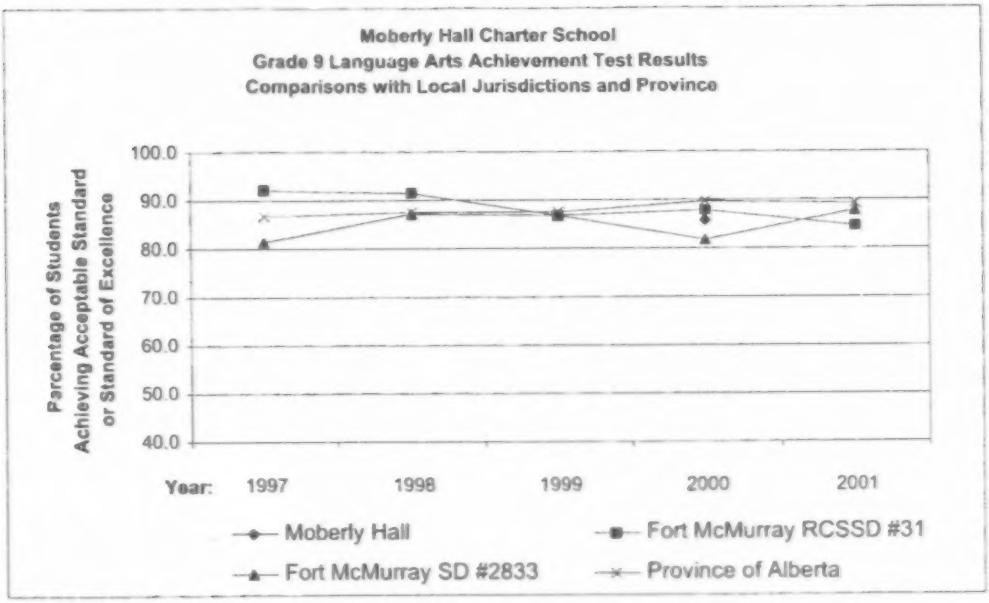

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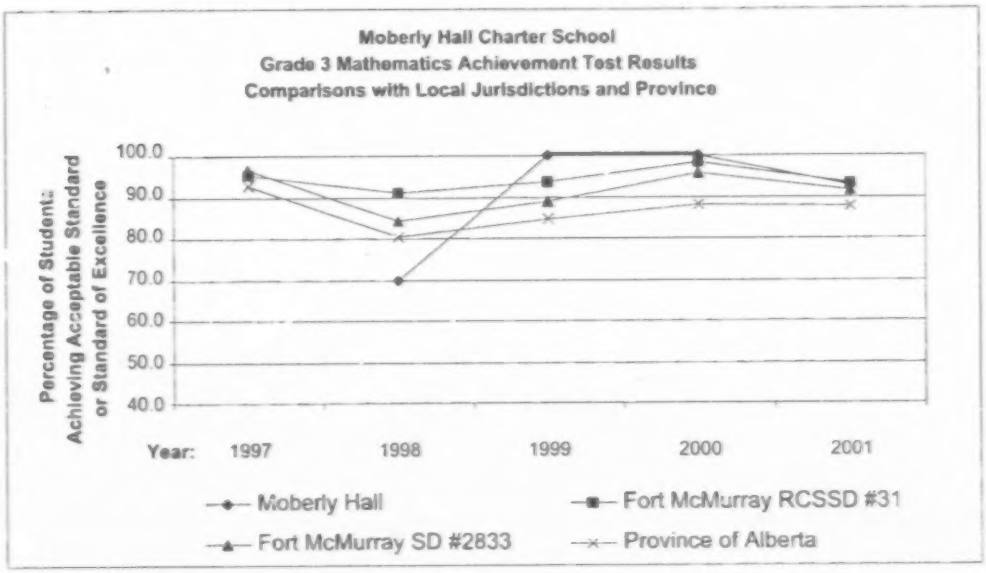


Figure 3-103

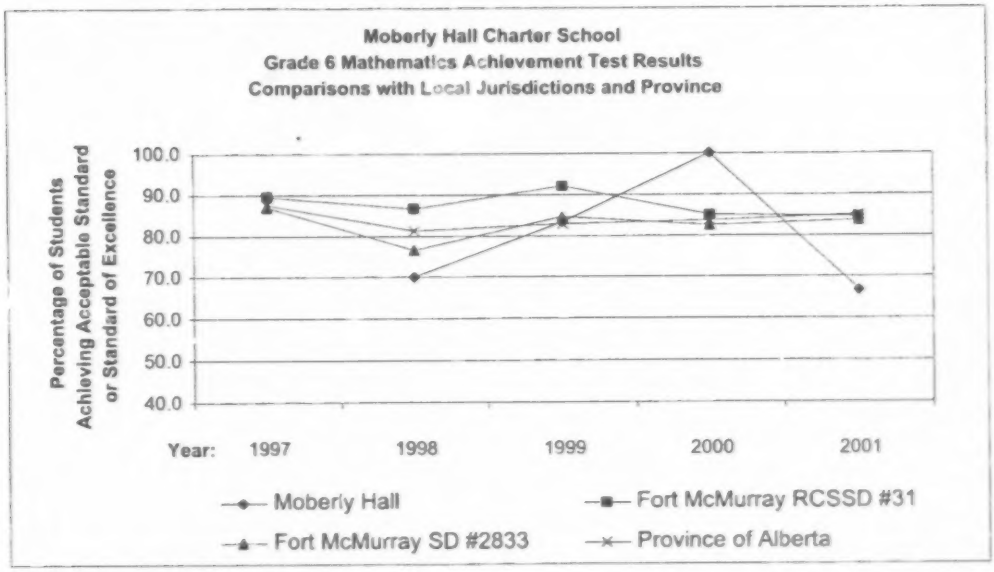
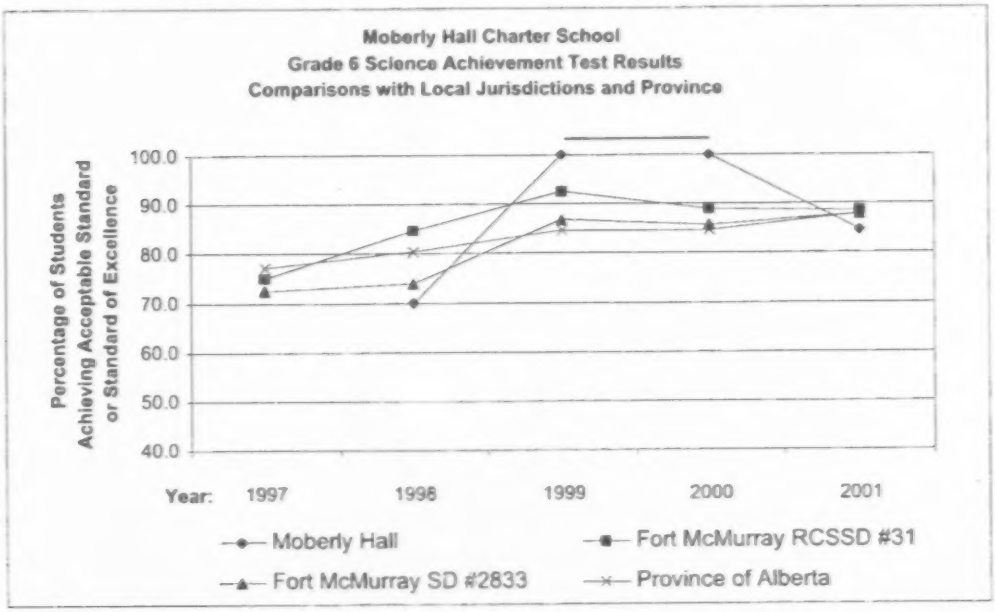


Figure 3-104

It is not possible to report results from Moberly Hall on the Grade 9 Mathematics tests as the numbers writing the tests are too small.



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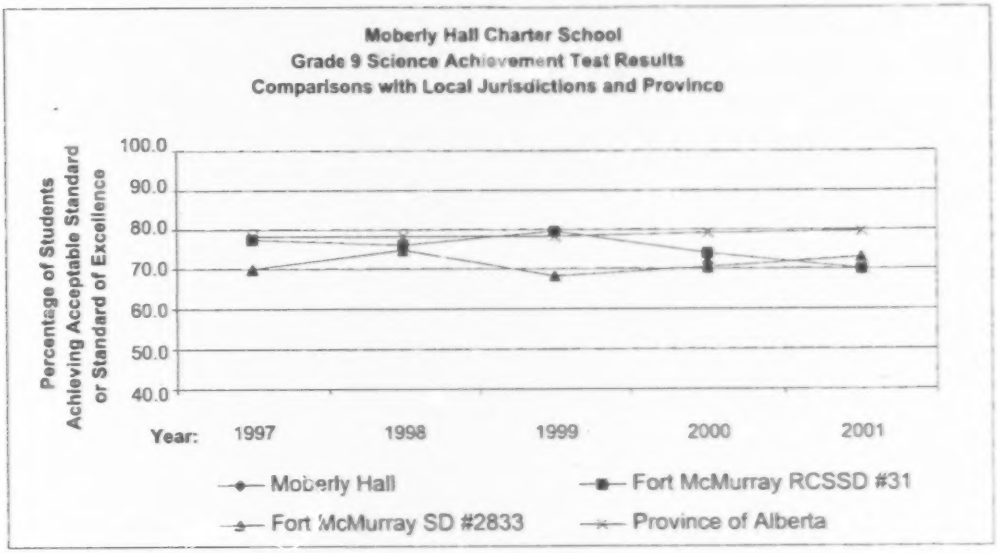


Figure 3-106

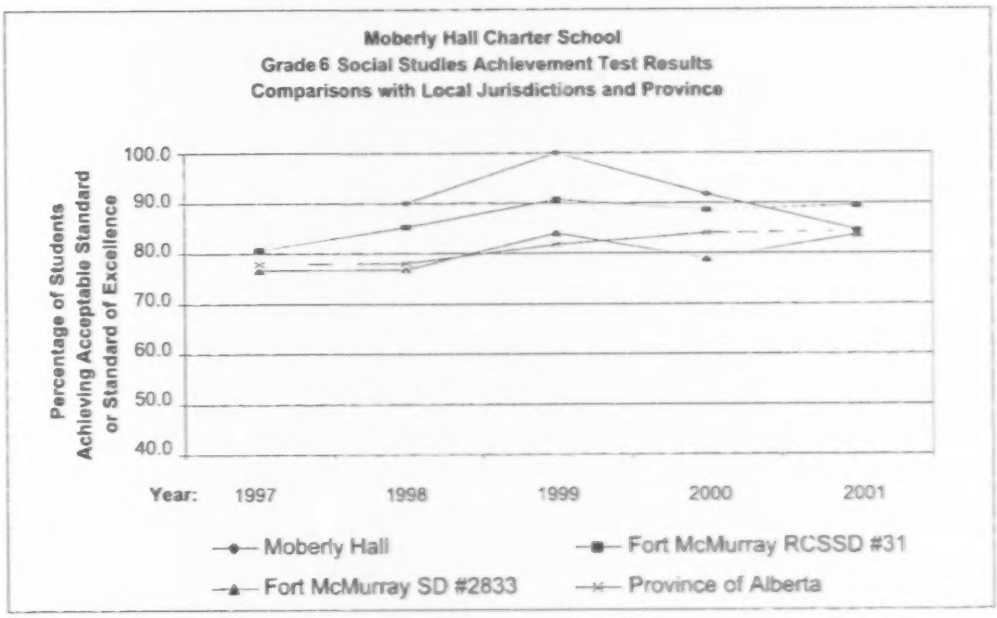


Figure 3-107

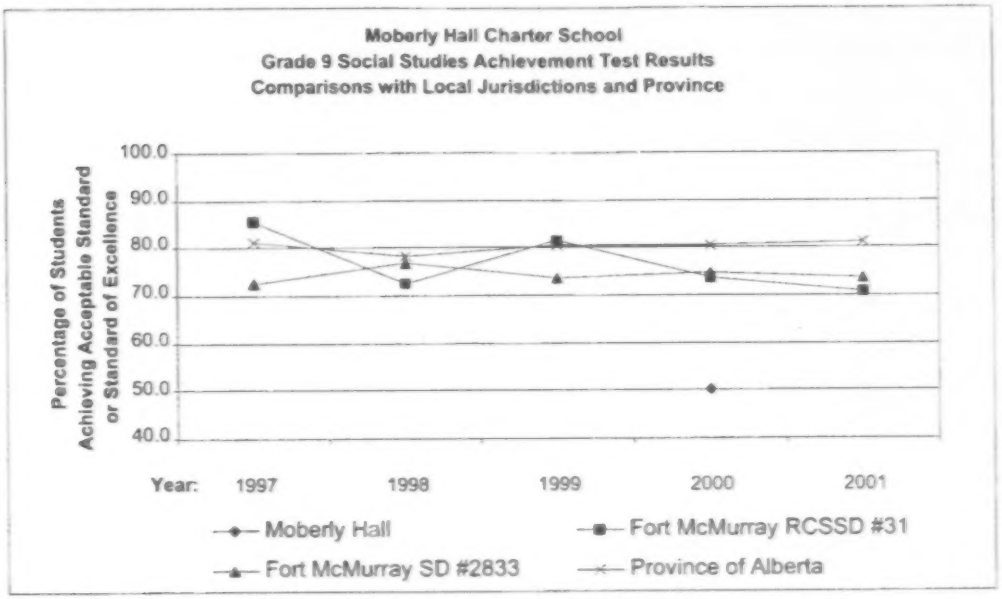


Figure 3-108

Interpretation of Data for Moberly Hall Charter School

The primary focus at Moberly Hall is on student learning styles, with the intent of assisting students to achieve to their full potential. Consequently, an important element of the Moberly Hall Charter is student achievement. As with the other charter schools whose focus was on achievement, Moberly Hall students have performed quite well on the PATs. The reader is cautioned that the results described below must be viewed with great caution because of the small sizes of classes at Moberly Hall. As with Foundations for the Future Charter School, Moberly Hall did not open its doors to students until the fall of 1997 thus PAT data are not available until 1998. Furthermore, no long-term data are available at the Grade 9 level for any PATs, consequently no longitudinal comparisons with local jurisdictions (Fort McMurray RCSSD #31 and Fort McMurray SD #2833) or the province can be made at that level.

All children writing the Grade 3 Language Arts PAT in 1998 to 2001 achieved the *Acceptable Standard* or better. These levels of achievement are from 2% to 7% better than the local jurisdictions and from 9% to 15% higher than the province. Students sitting the Grade 6 Language Arts PAT performed on par with the province and the local jurisdictions during all four years.

In Mathematics at the Grade 3 and 6 levels, student performance varied from slightly below to slightly above that of the comparison school districts and the province. No noticeable

trends could be discerned. This is not surprising given the small numbers of students who wrote the PATs.

Grade 6 Science PAT results were very similar to the Mathematics performance. Proportions of students achieving the *Acceptable Standard* and the *Standard of Excellence* were similar among Moberly Hall students and students in the local jurisdictions and the province. Slight variations above and below the means for the comparison groups were typical.

In 1998, 1999, and 2000, a much greater proportion of Grade 6 Social Studies students from Moberly Hall achieved the *Acceptable Standard* or better than the local and provincial comparison groups. In 2001, the proportion of students reaching the *Acceptable Standard* or better was similar to that of the province and Fort McMurray SD #2833 and slightly lower than Fort McMurray RCSSD #31.

NEW HORIZONS CHARTER SCHOOL

Figures 3-109 to 3-118 provide information regarding the percentages of students in New Horizons Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subjects.

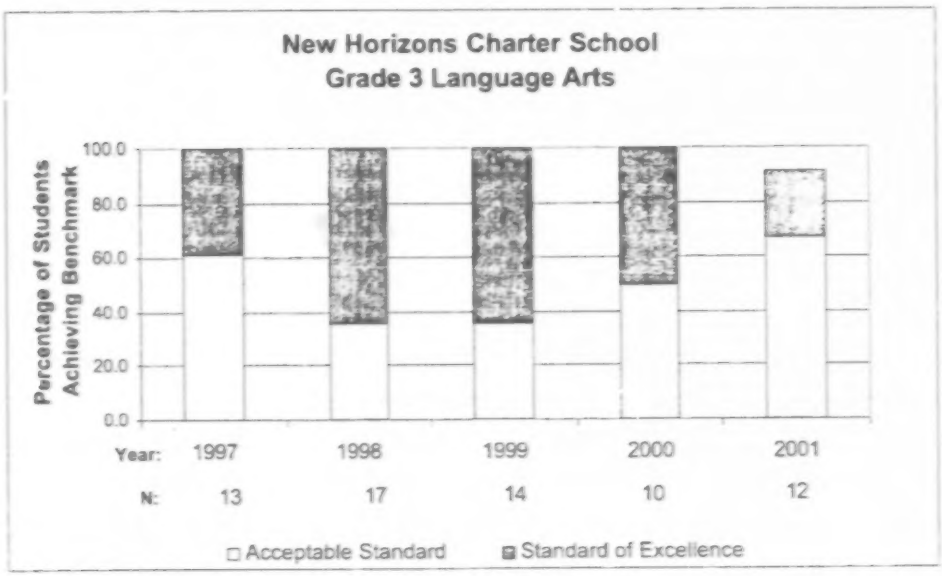


Figure 3-109

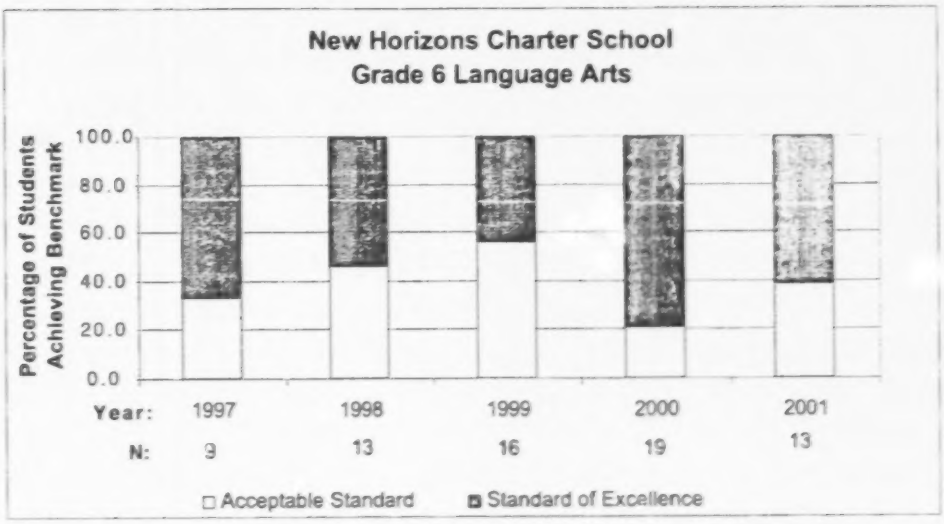


Figure 3-110

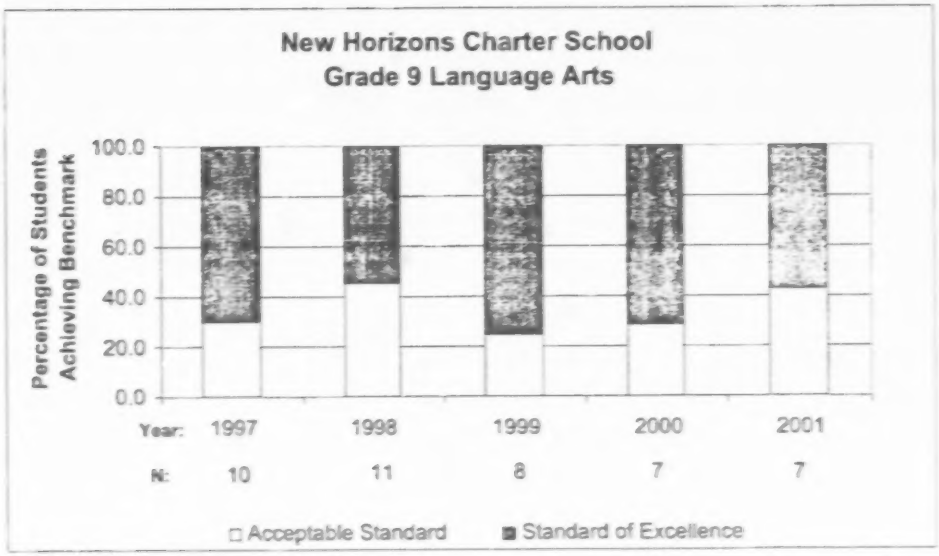


Figure 3-111

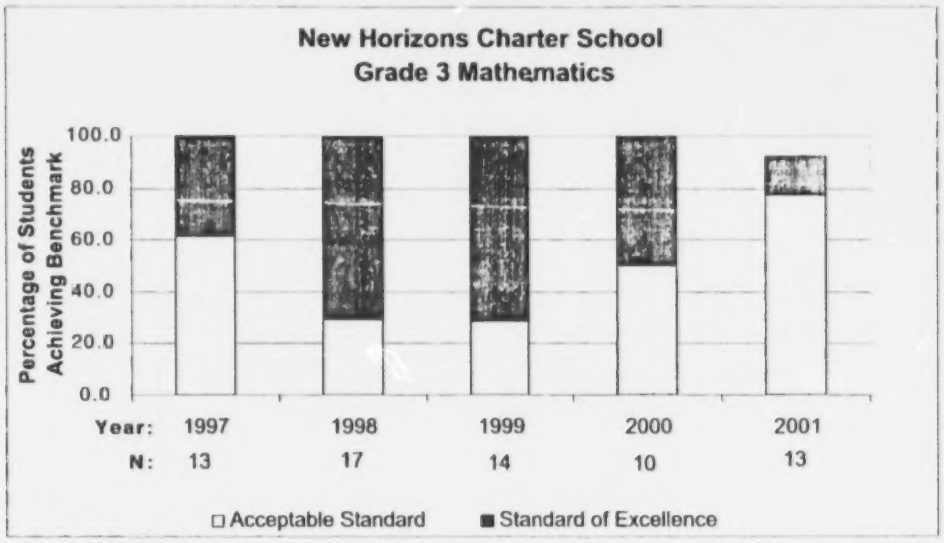
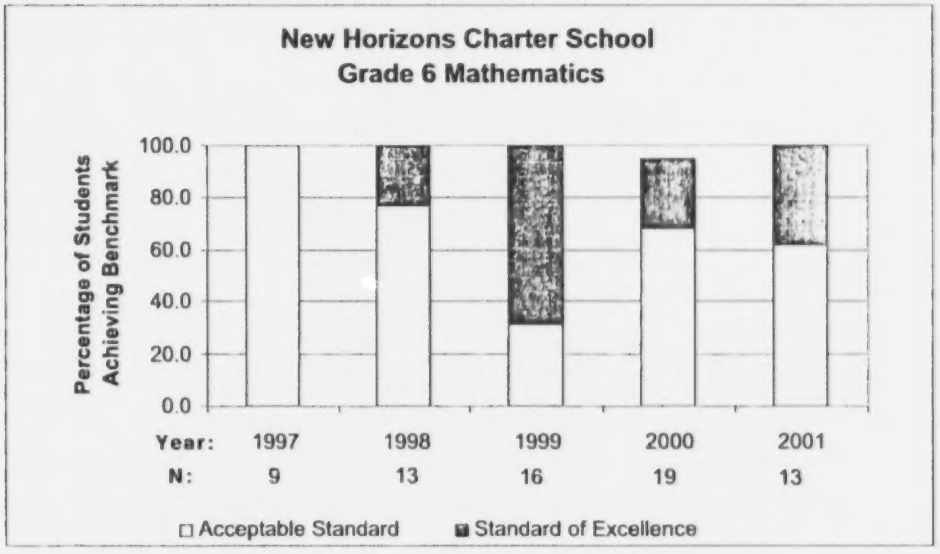


Figure 3-112



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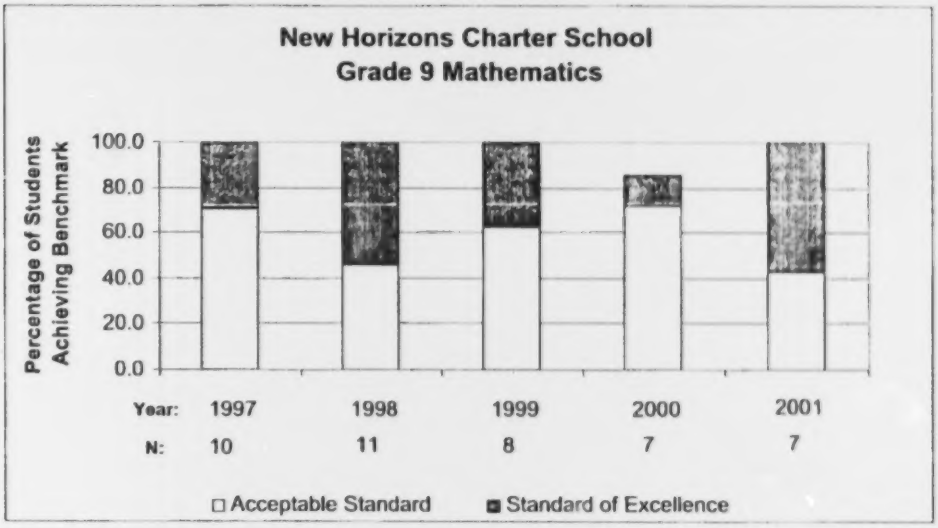
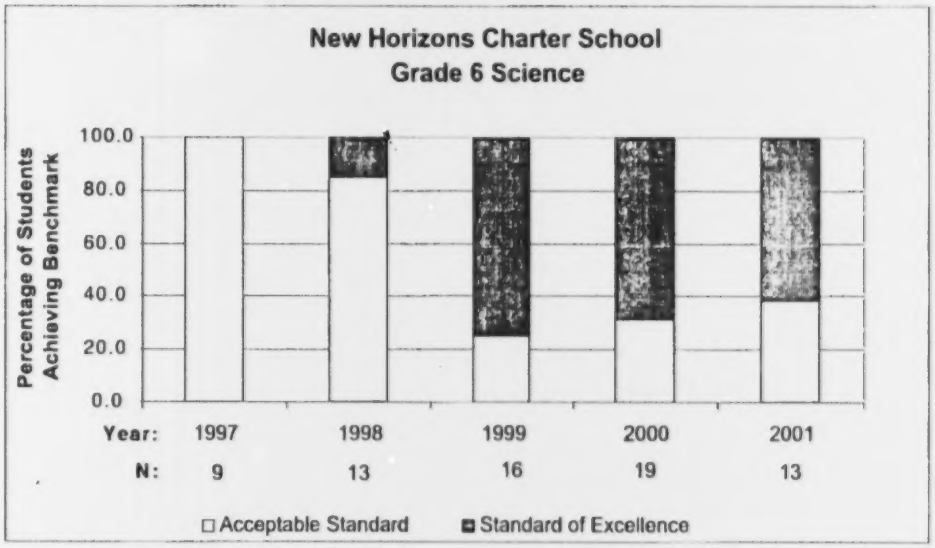


Figure 3-114



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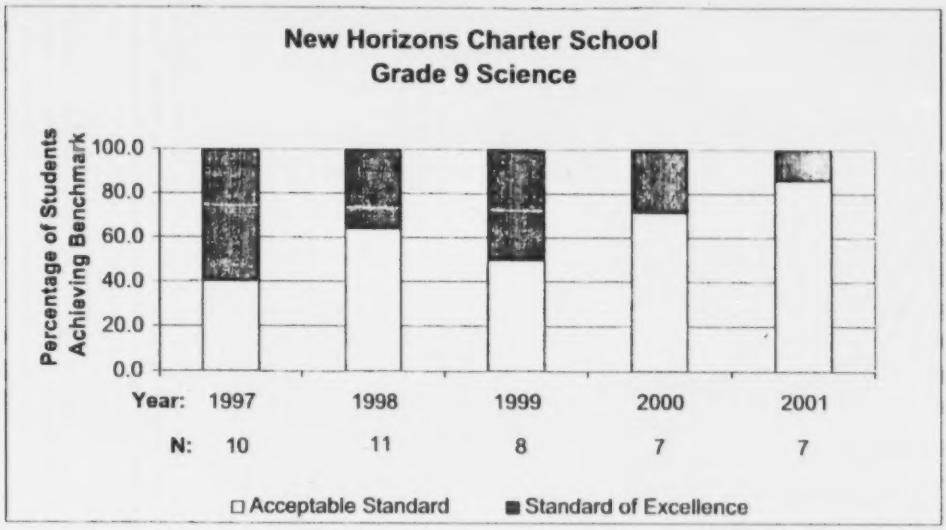
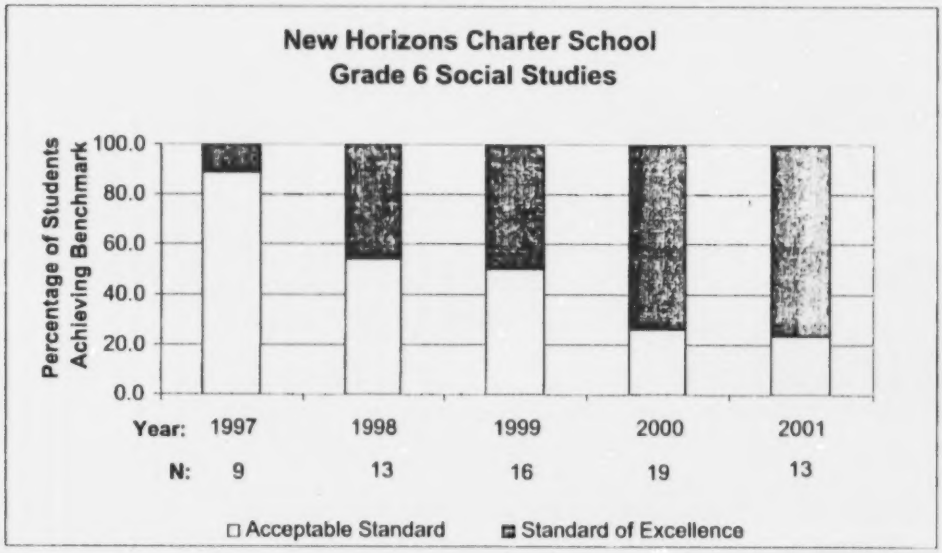


Figure 3-116



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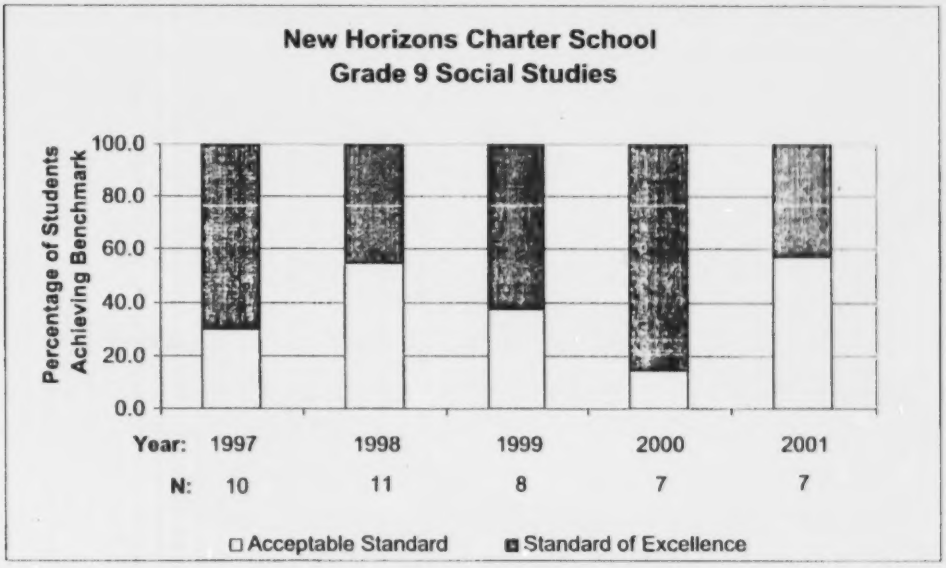
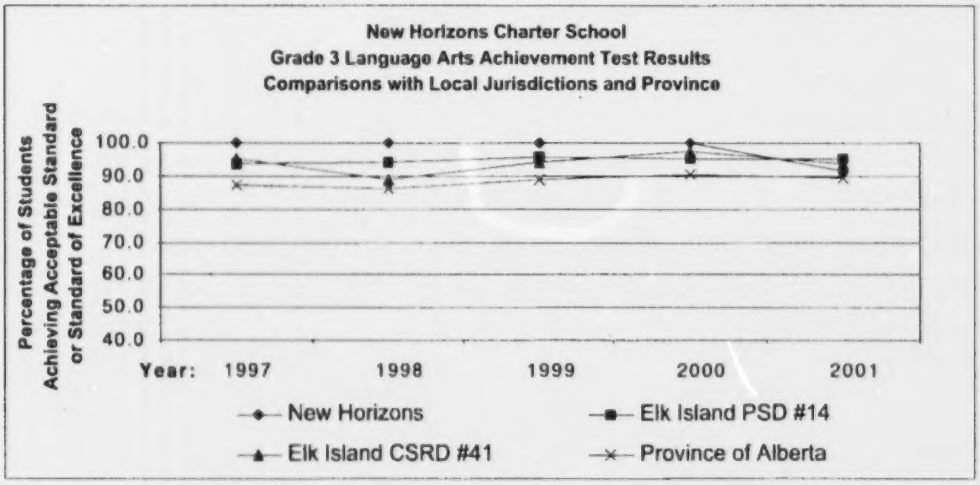


Figure 3-118

Figures 3-119 to 3-126 provide us with comparisons of the percentages of students in New Horizons Charter School reaching or exceeding in *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.



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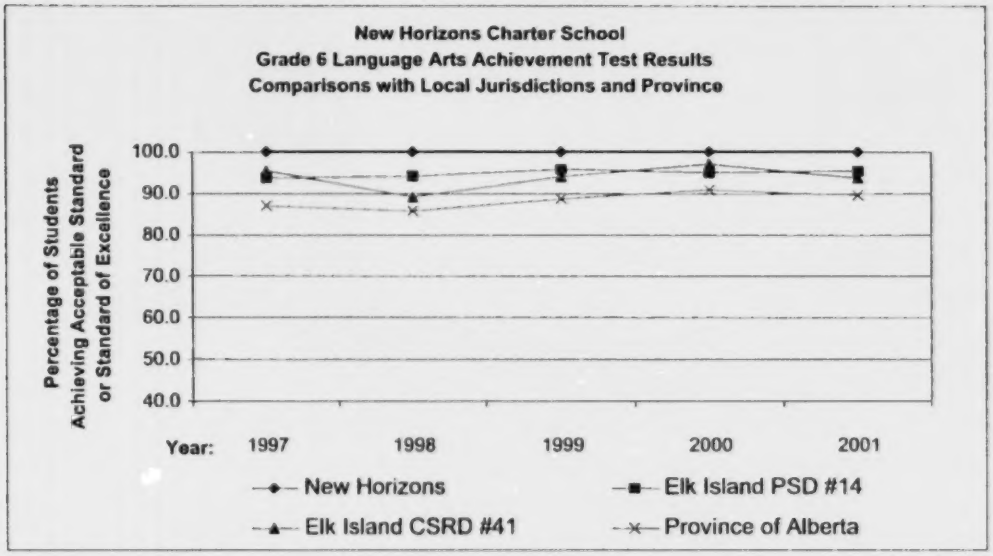

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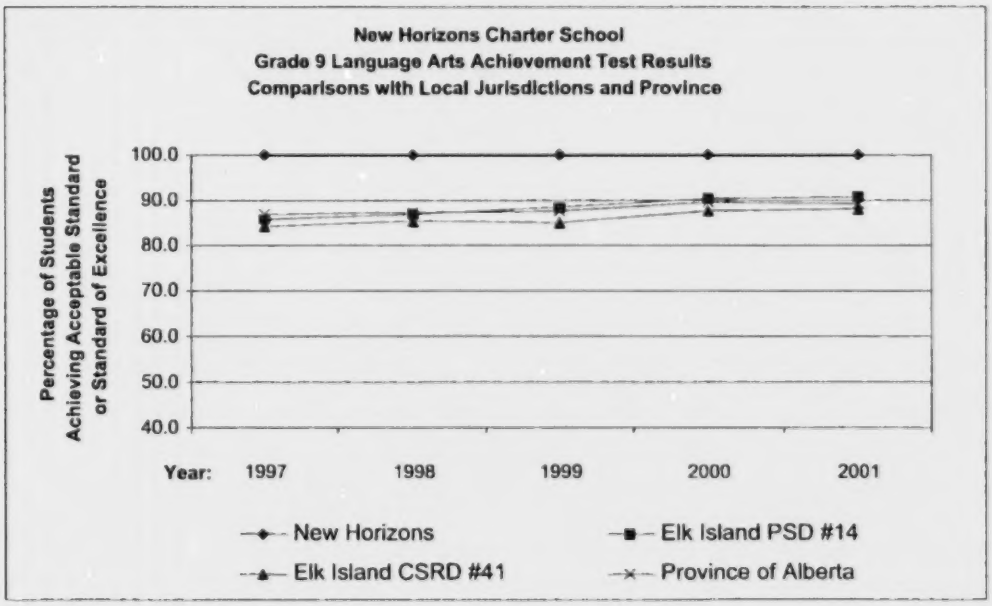

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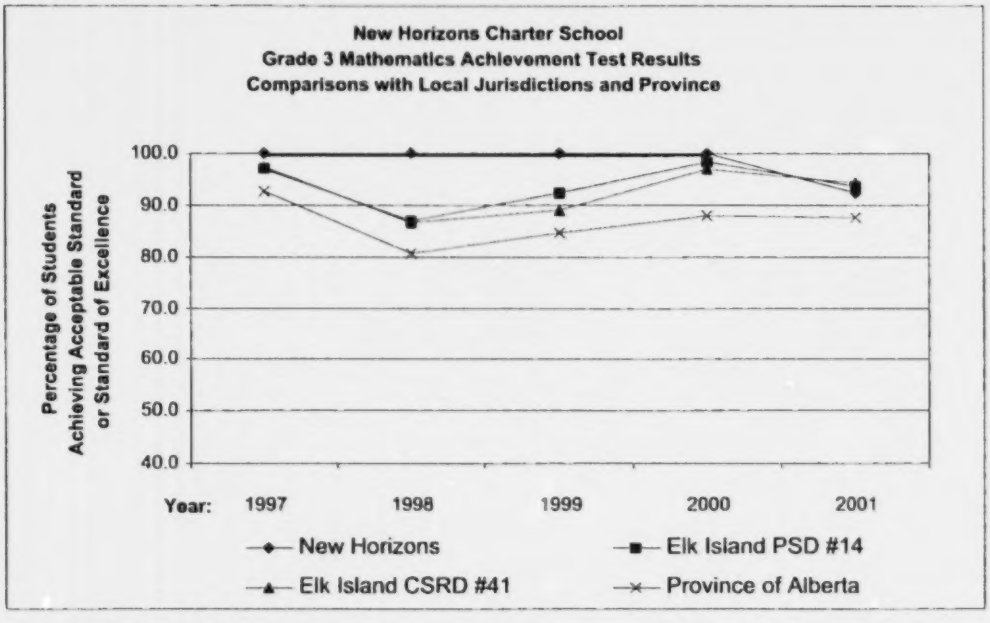

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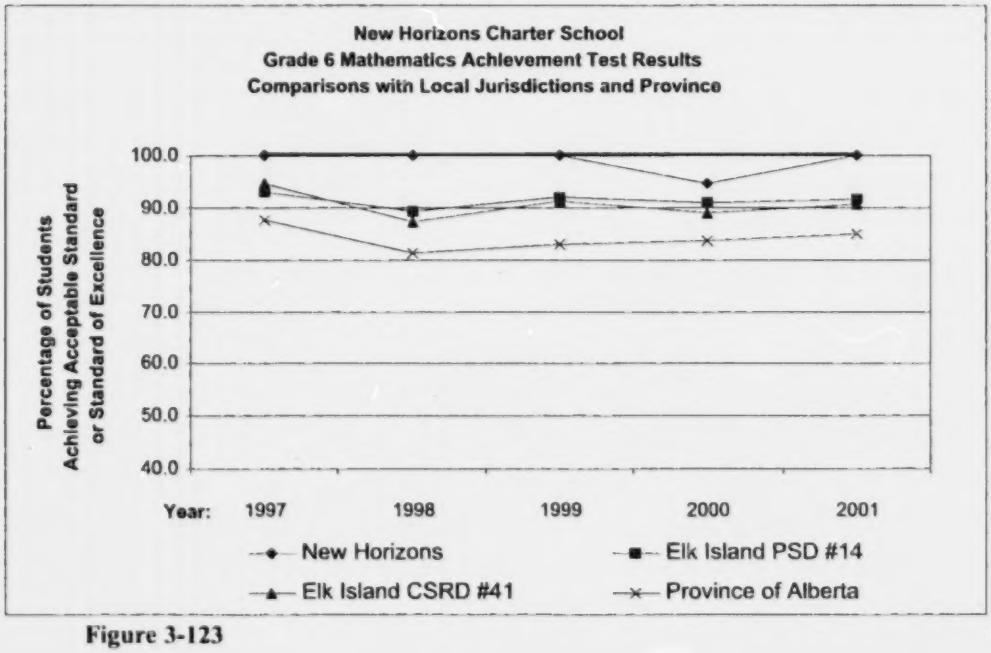
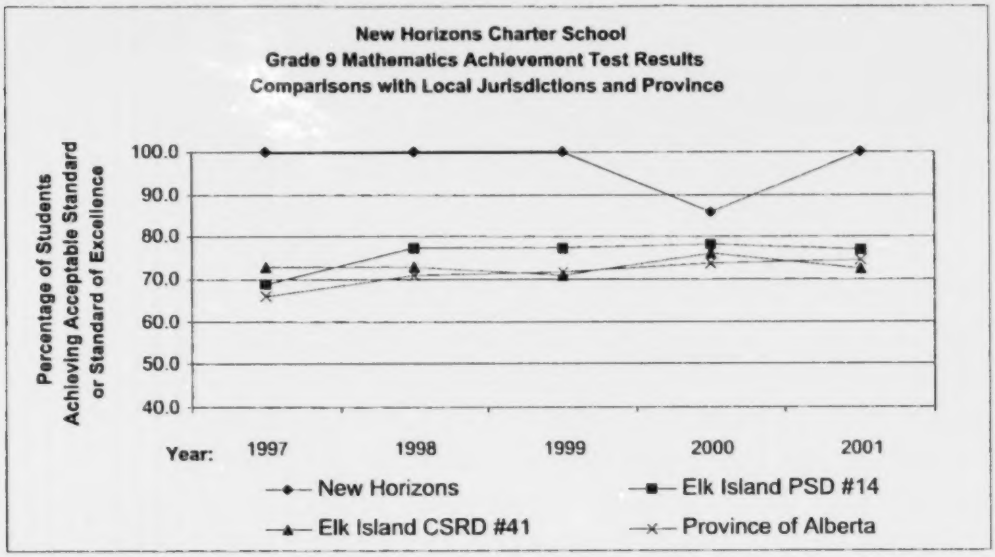


Figure 3-123



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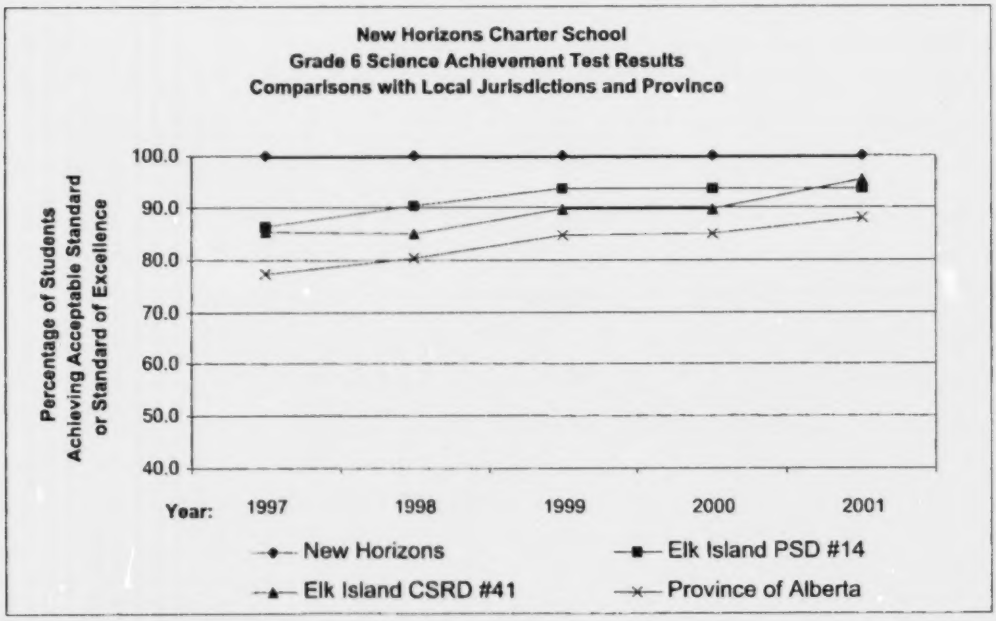


Figure 3-125

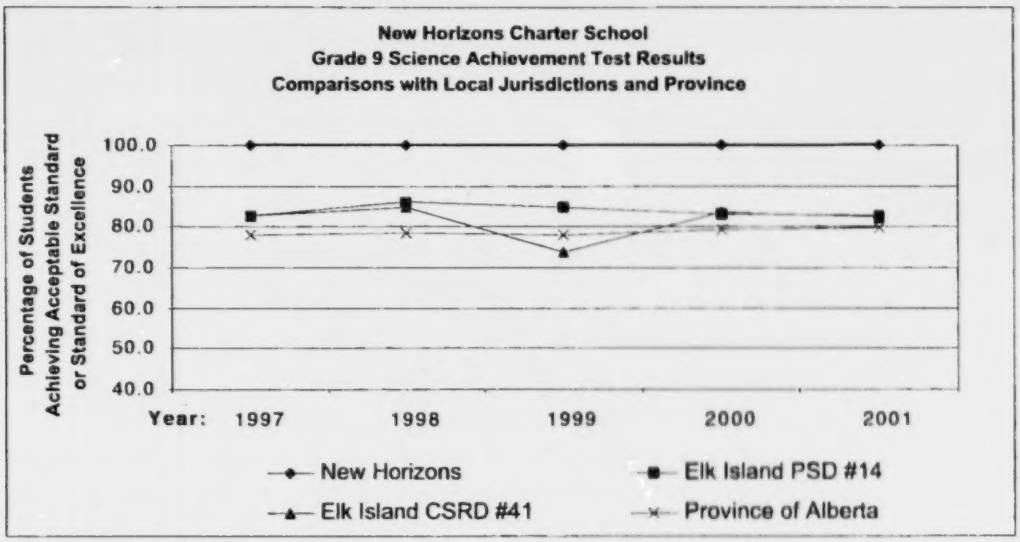


Figure 3-126

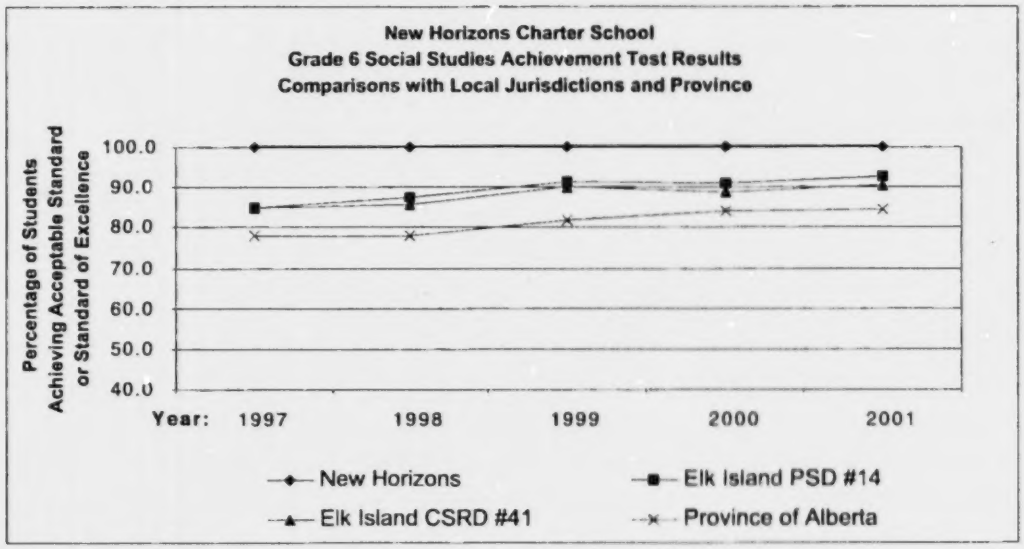


Figure 3-127

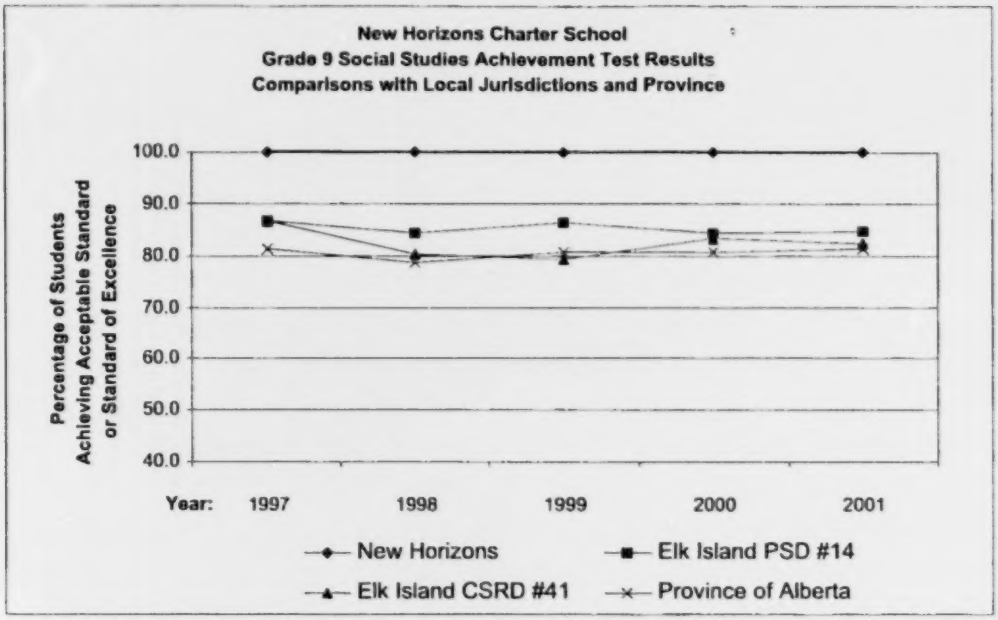


Figure 3-128

Interpretation of the Data for New Horizons Charter School

New Horizons Charter School specifically targets gifted and above average children as candidates for its program. Relative to the province and the local jurisdictions (Elk Island PSD #14 and Elk Island CSRD #41) serving the Sherwood Park area, New Horizons students perform extremely well on all PATs at all levels. However, the same warning provided above regarding the small numbers of children writing the PATs also applies to New Horizons Charter School. Any "apparent" trends described below may be artifacts of extremely small class sizes in which the results of one individual may skew and distort the overall results attributed to the group.

At the Grade 3 level in Language Arts, 100% of children achieved the *Acceptable Standard* or better from 1997 to 2000. In 2001, 92% of students (i.e., one student did not meet the *Acceptable* benchmark) achieved the *Acceptable Standard* or better. This is approximately the same as the comparison jurisdictions and the province. All New Horizons students writing the Grade 6 PATs in Language Arts from 1997 to 2001 achieved the *Acceptable Standard* or better. This is slightly better than the comparison districts and the province which ranged from approximately 85% to 95% achieving the *Acceptable Standard* or the *Standard of Excellence*. At the Grade 9 level in Language Arts, students performed as well as their Grade 6 counterparts; 100% of Grade 9 students achieved the *Acceptable Standard*

or better from 1997 to 2001 – a figure that is 10% to 15% higher than the comparison districts and the province.

Mathematics achievement at the Grade 3 level echoed the students' performance in Language Arts. All students achieved the *Acceptable Standard* or better from 1997 to 2000. Then in 2001, 92% of students (i.e., all but one) achieved the *Acceptable Standard* or the *Standard of Excellence*. Overall the Grade 3 Mathematics PAT achievement was quite similar to that of the local jurisdictions and the province. From 1997 to 1999 and then again in 2001, 100% of students achieved the *Acceptable Standard* or better on the Grade 6 Mathematics PATs. In 2000, approximately 95% (i.e., all but one again) achieved the *Acceptable Standard* or better. In all years, higher proportions of New Horizons students achieved the *Acceptable Standard* or better than in the comparison districts and the province. From 1997 to 1999 and then again in 2001, 100% of students achieved the *Acceptable Standard* or better on the Grade 6 Mathematics PATs. In 2000, approximately 86% (i.e., all but one again) achieved the *Acceptable Standard* or better. In all years, higher proportions of New Horizons students achieved the *Acceptable Standard* or better than in the comparison districts and the province.

On PATs taken at the Grade 6 and 9 levels in Science and Social Studies, 100% of students at New Horizons achieved the *Acceptable Standard* or better. In these two subject areas at these two grade levels, children from this school outperformed the local comparison districts and the province.

SCIENCE ALBERTA CHARTER SCHOOL

Figures 3-129 to 3-139 provide information regarding the percentages of students in Science Alberta Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subject, for the two years in which students wrote the exams. In all of these figures we are only able to report statistics for the Grade 6 class.

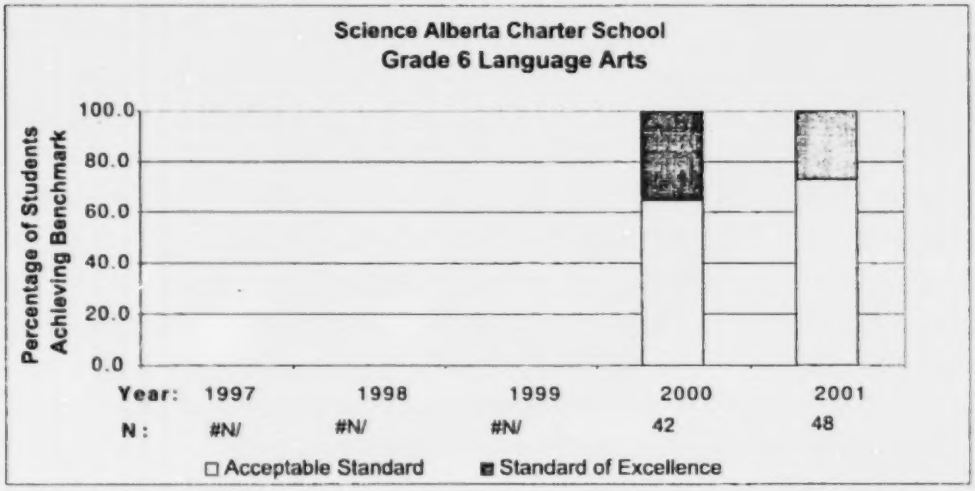


Figure 3-129

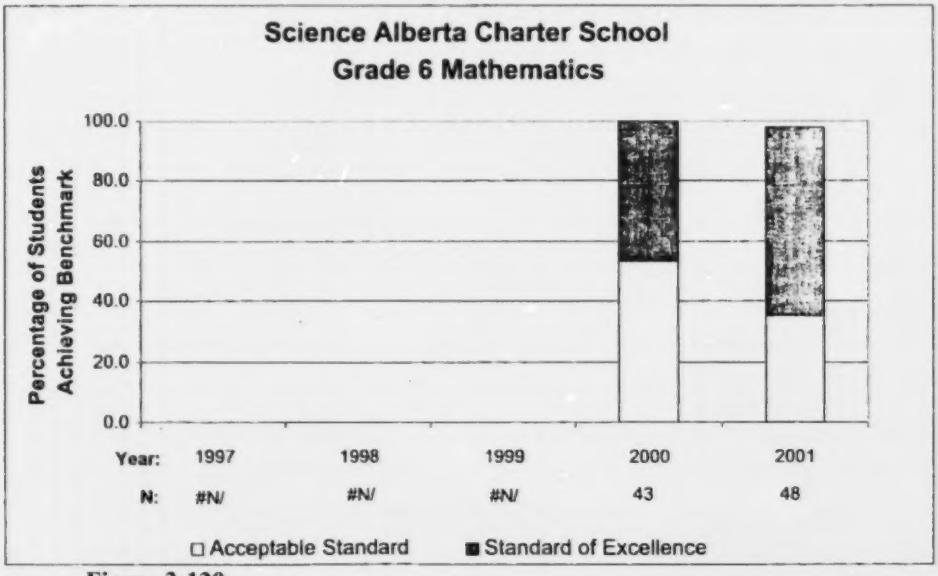


Figure 3-130

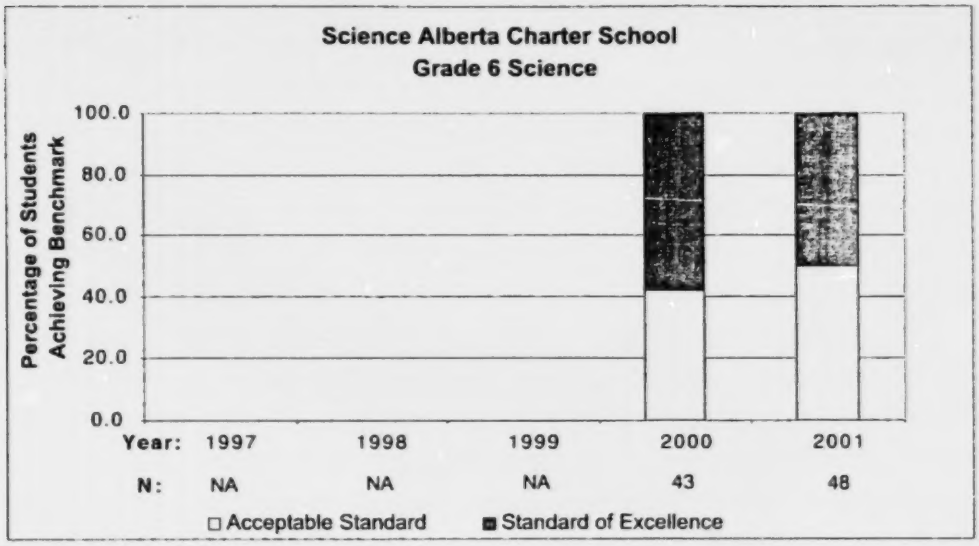


Figure 3-131

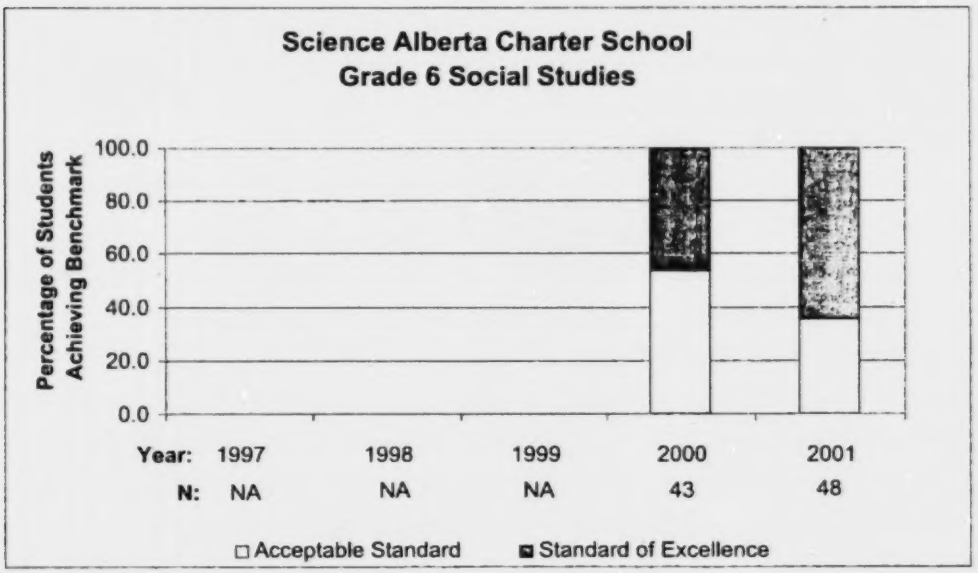


Figure 3-132

Figures 3-133 to 3-136 provide us with comparisons of the percentages of Grade 6 students in Science Alberta Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.

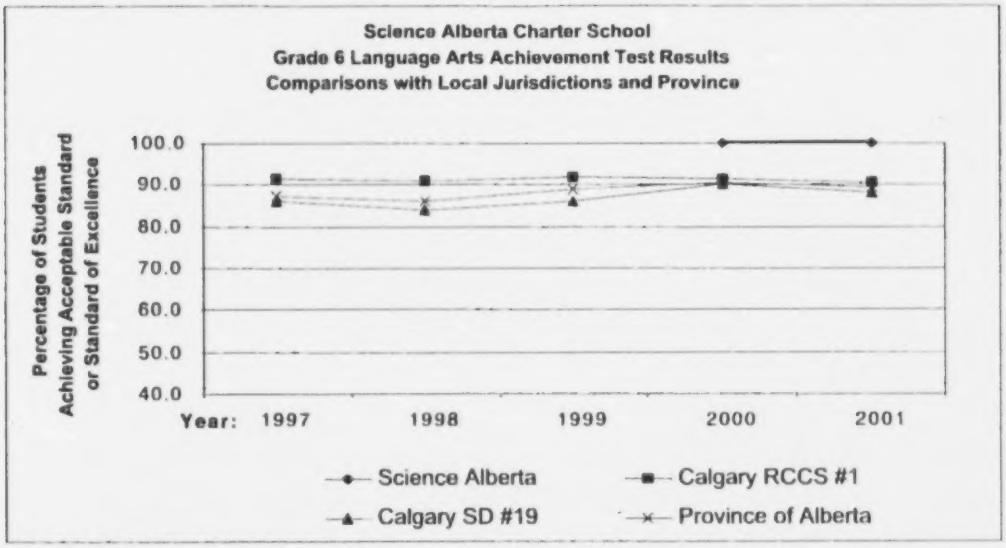


Figure 3-133

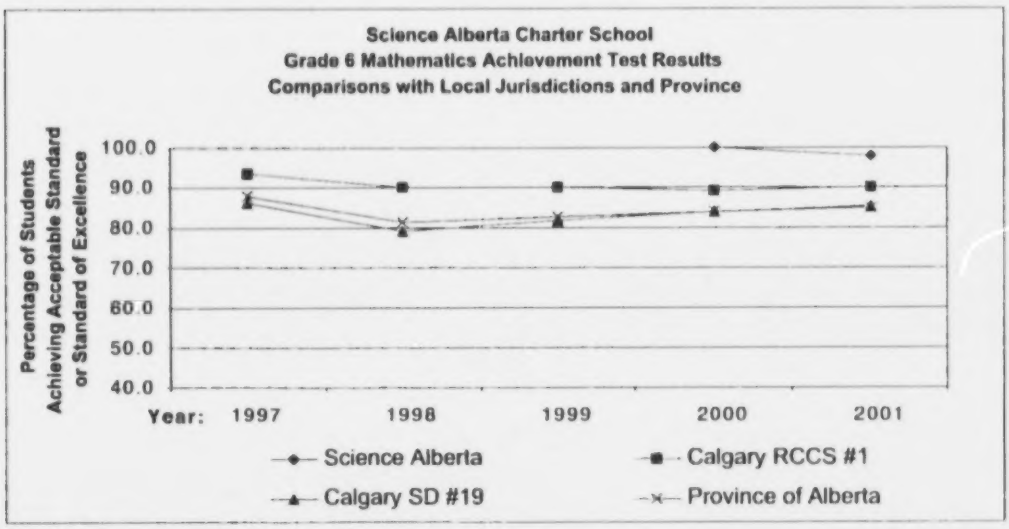


Figure 3-134

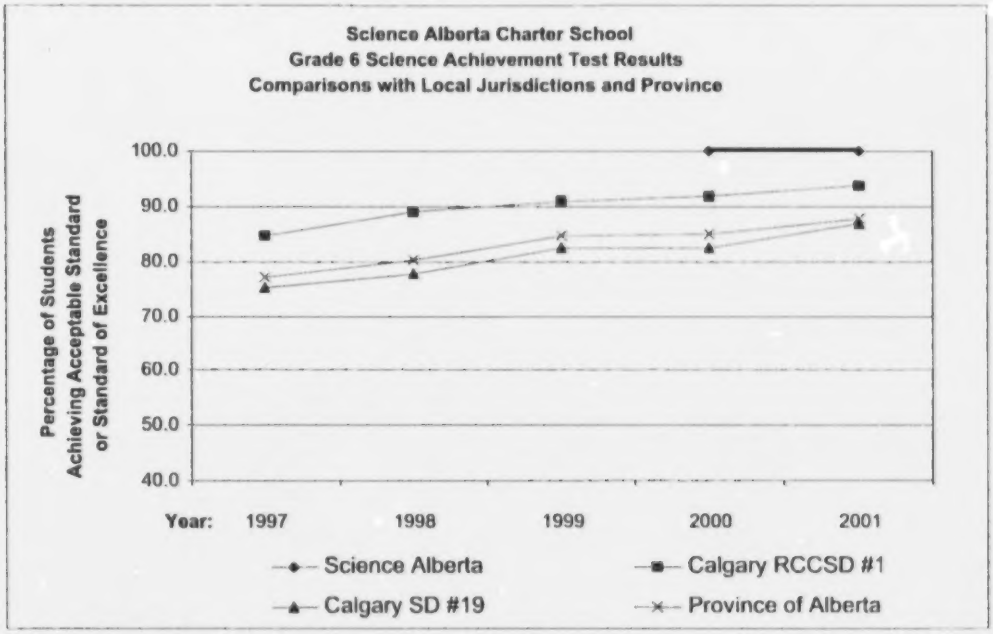


Figure 3-135

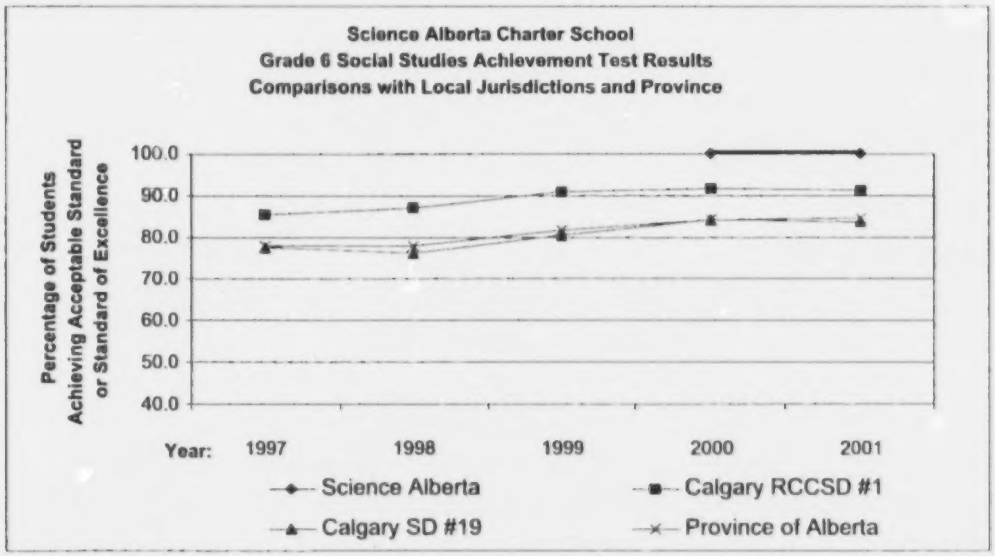


Figure 3-136

Interpretation of Data on Science Alberta Charter School

The Science Alberta Charter School admitted students for fall 1999 classes, thus PAT data are only available for the years 2000 and 2001. No attempt will be made to try to establish longitudinal trends based on only two years of data collected at the Grade 6 level. Relative to the local jurisdictions (Calgary RCCSD #1 and Calgary SD #19) for these two years, students at the Science Alberta Charter School have performed extremely well with 100% of students reaching the *Acceptable* or *Excellence* Standard in Language Arts, Science, and Social Studies. All students (100%) writing the 2000 Grade 6 Mathematics PAT and 98% of students writing the 2001 Grade 6 Mathematics PAT reached the *Acceptable Standard* or the *Standard of Excellence*.

SUZUKI CHARTER SCHOOL

Figures 3-137 to 3-142 provide information regarding the percentages of students in Suzuki Charter School reaching the *Acceptable Standard* and the *Standard of Excellence* in the specified grades and subjects.

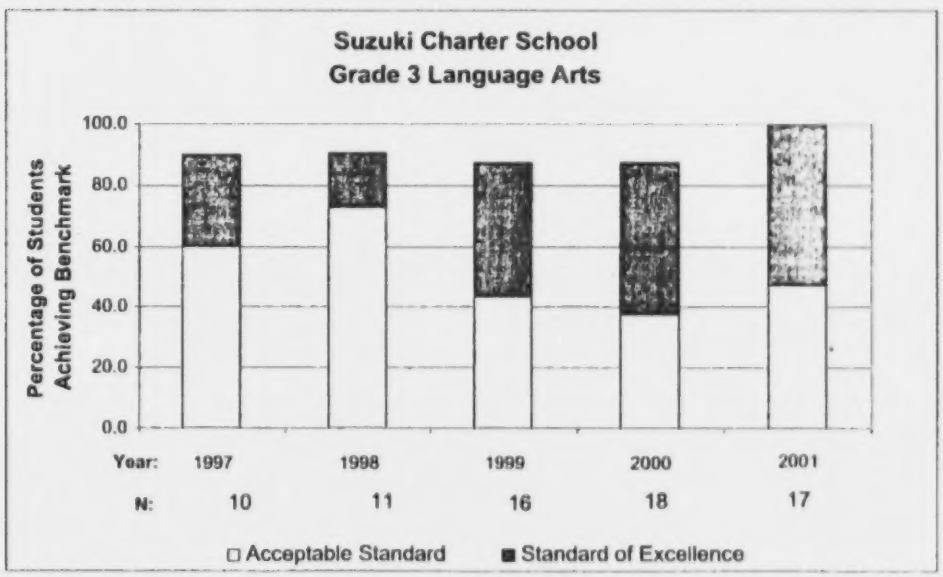


Figure 3-137

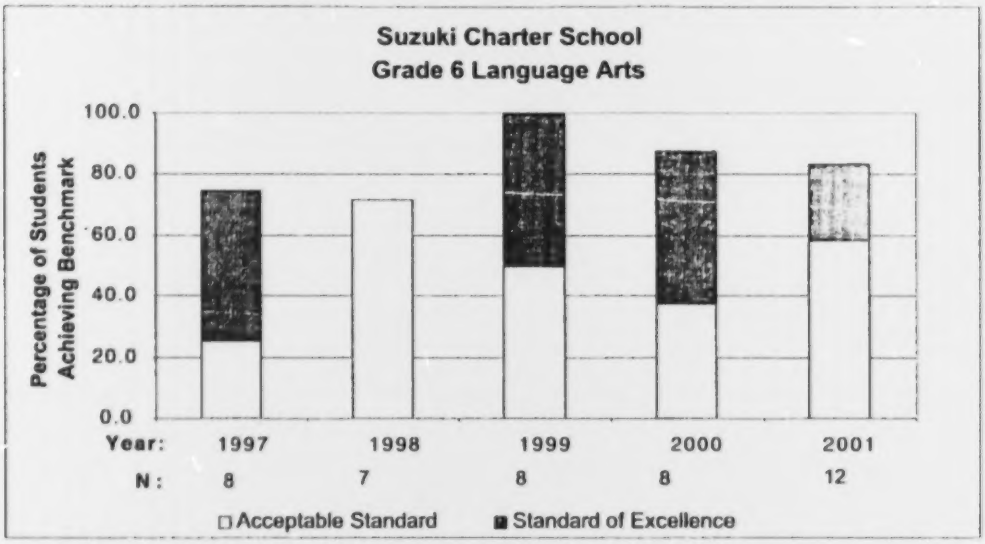


Figure 3-138

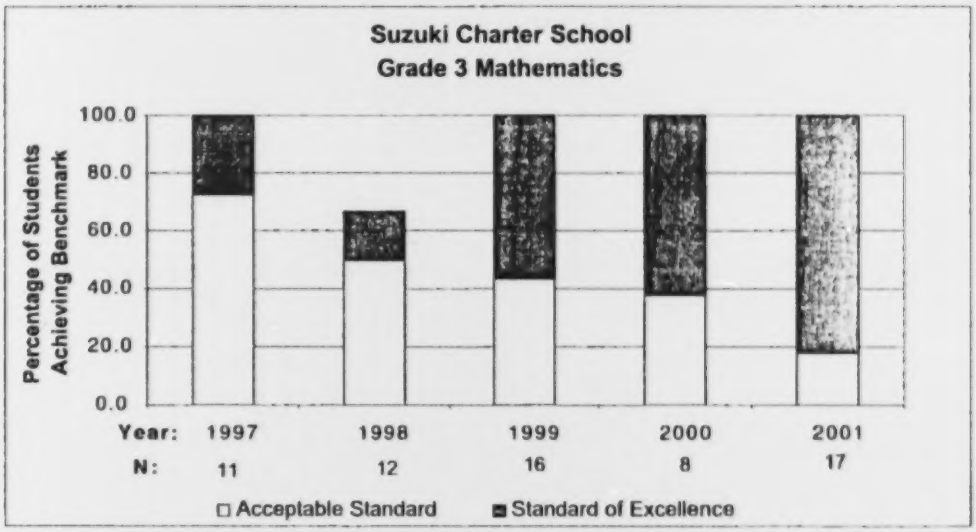


Figure 3-139

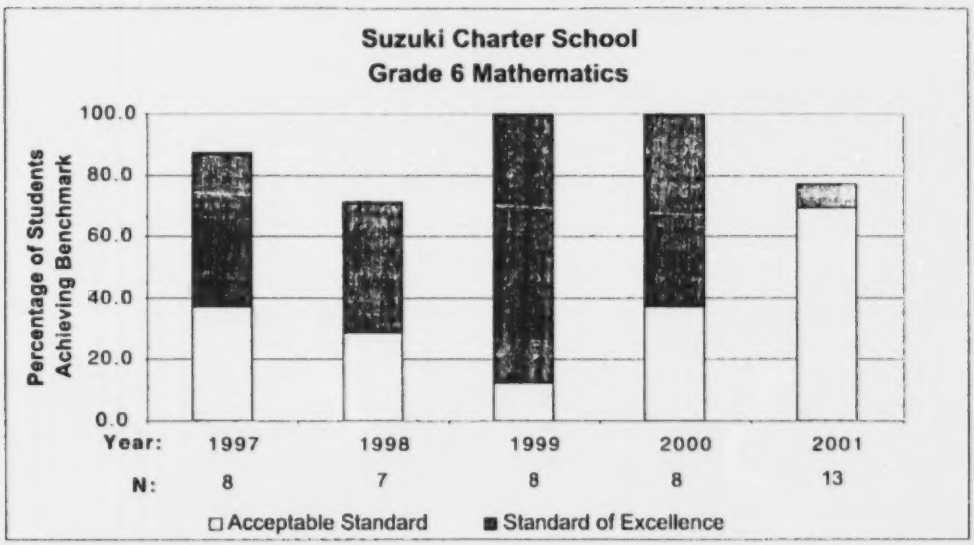


Figure 3-140

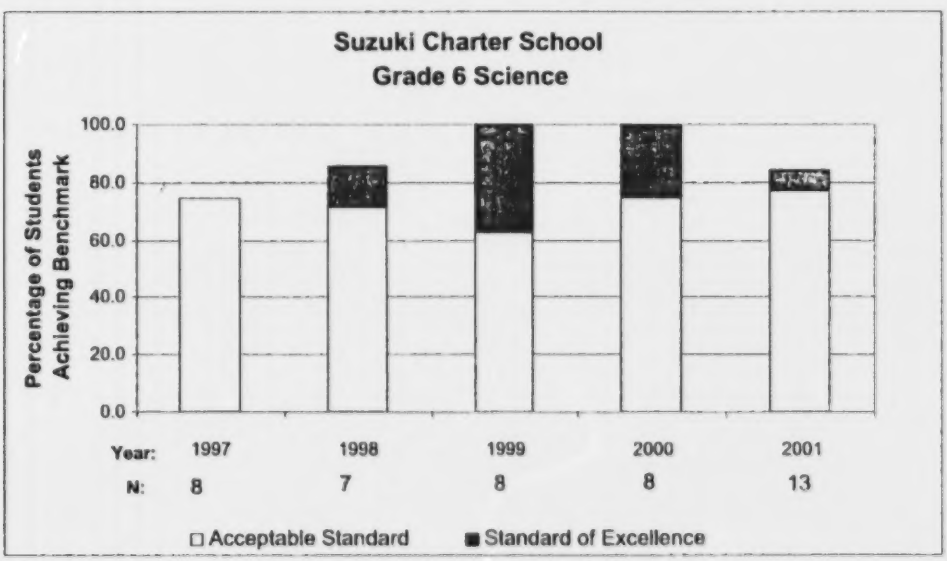


Figure 3-141

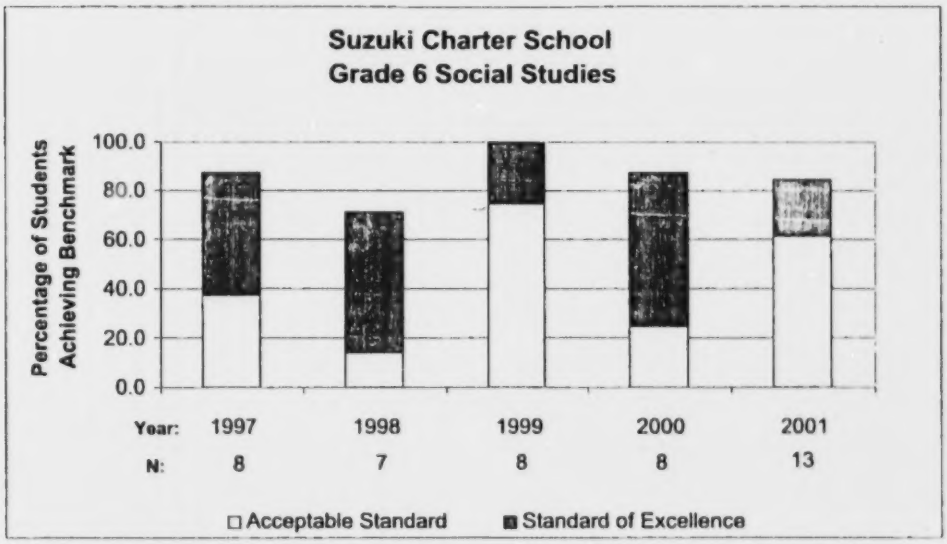


Figure 3-142

Figures 3-143 to 3-148 provide us with comparisons of the percentages of students in Suzuki Charter School reaching or exceeding the *Acceptable* and *Excellence* benchmarks, with those in the jurisdictions in which the school is located, and with the provincial figures.

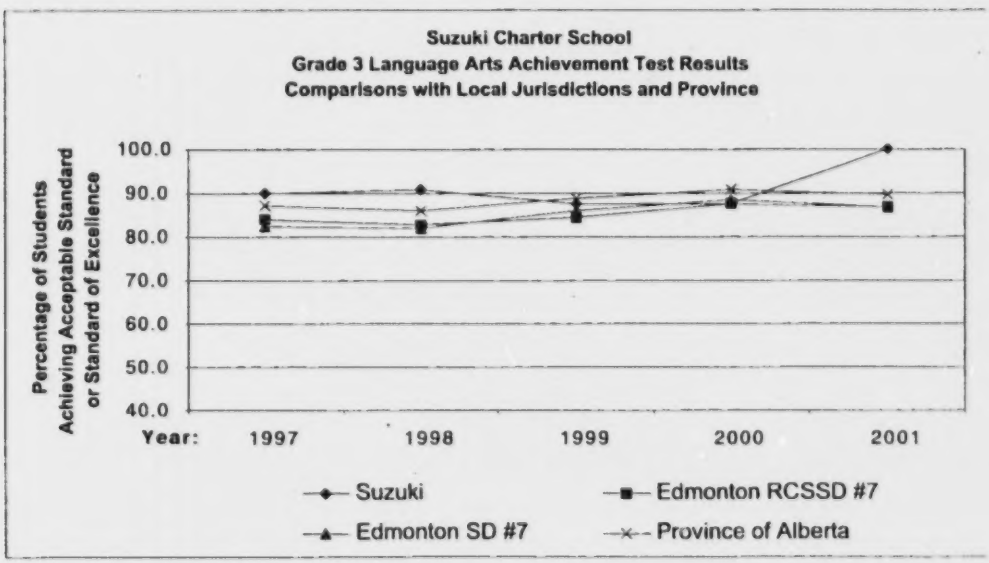
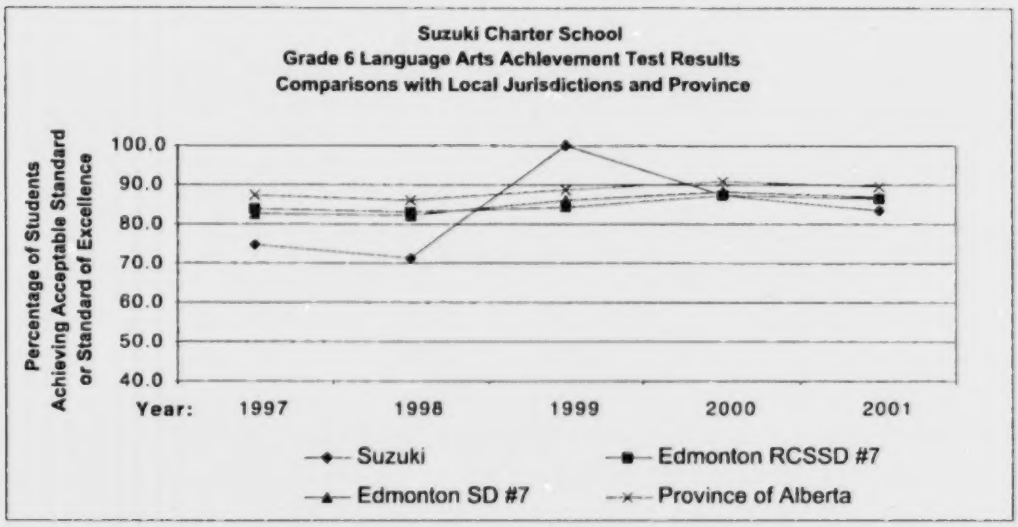


Figure 3-143



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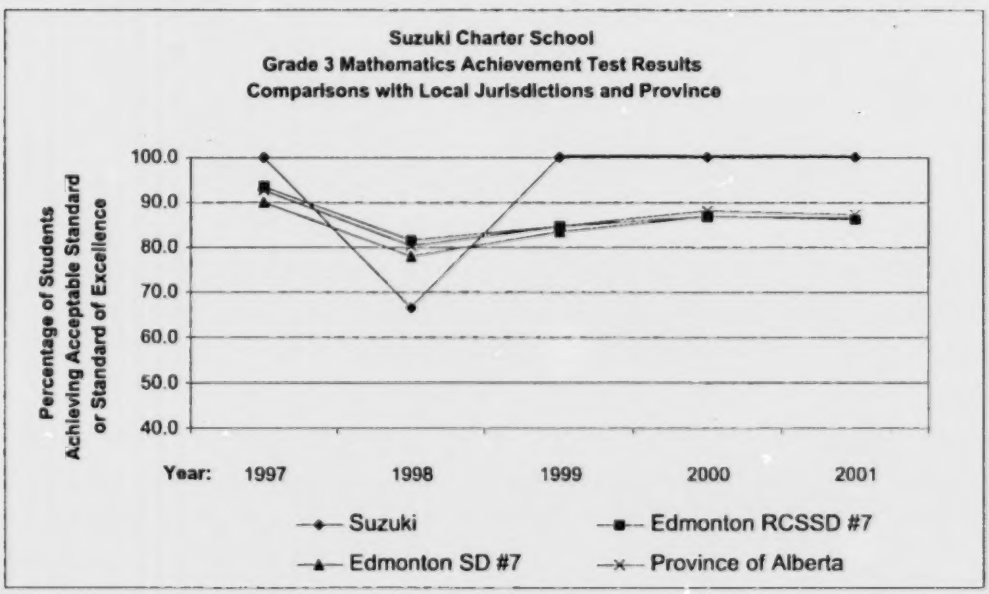

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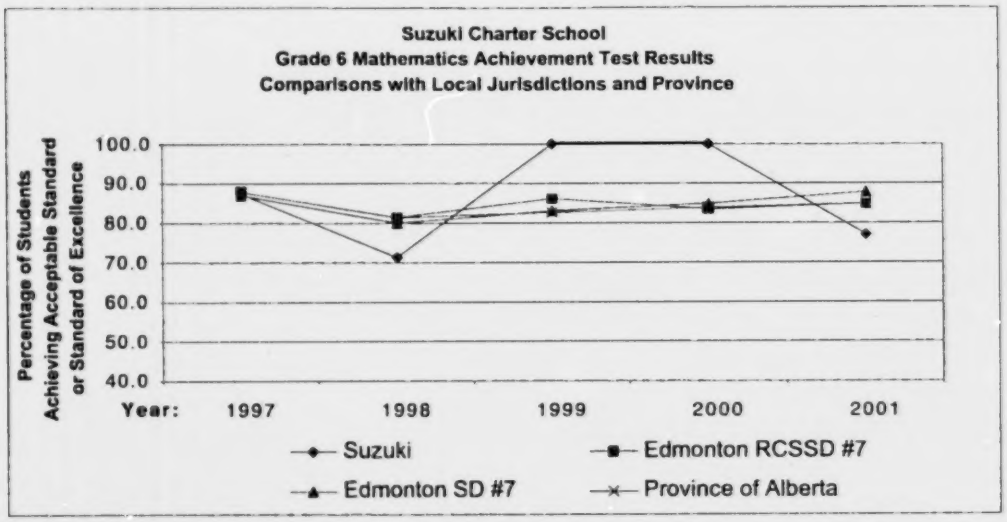

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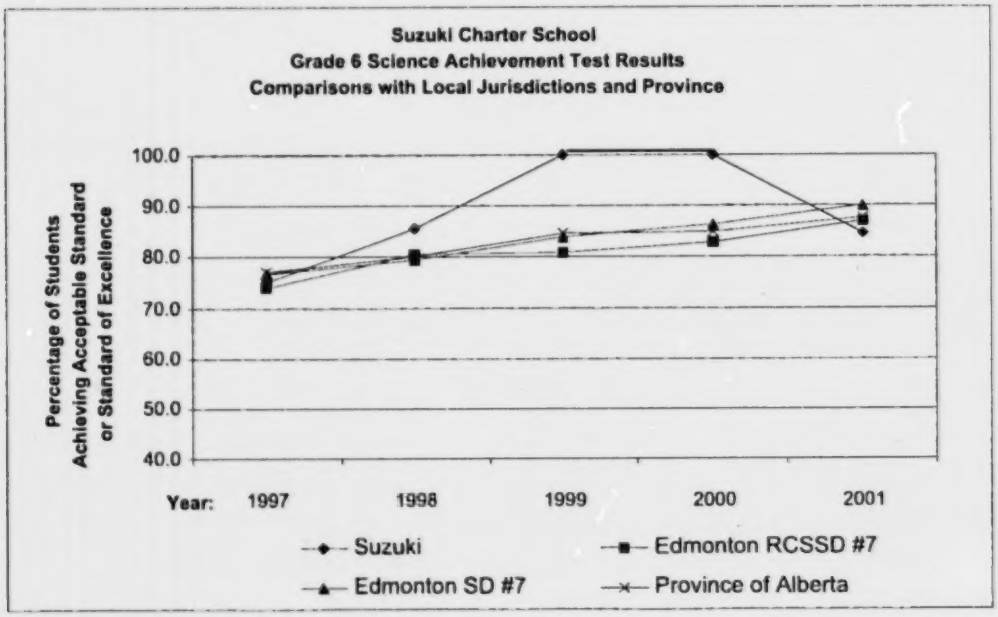

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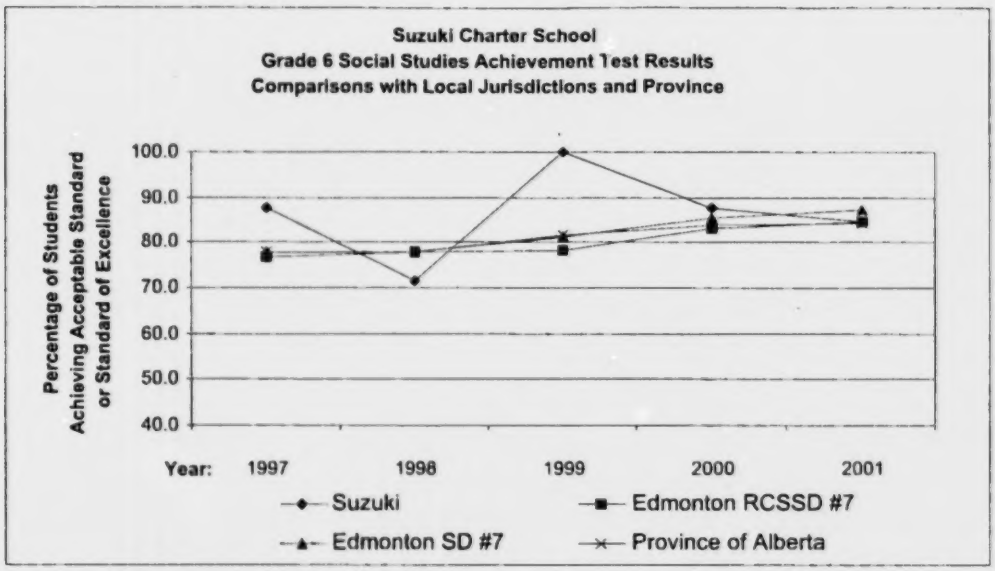

Figure 3-148

Interpretation of the Data for Suzuki Charter School

The Suzuki Charter School is the third school for which the reader is reminded of the difficulty of making generalizations on the basis of very small class sizes. Comparisons with local jurisdictions are made with Edmonton SD #7 and Edmonton RCSSD #7.

In Grade 3 Language Arts, with the exception of 2001, approximately the same proportion of students achieved the *Acceptable Standard* or better as in the local jurisdictions and the province. In 2001, 100% of Suzuki Charter School Grade 3 students achieved the *Acceptable Standard* or the *Standard of Excellence*. Proportions of students achieving the acceptably Standard or higher in Grade 6 Language Arts have fluctuated from slightly below to slightly above the rates for the province and the local districts. This is to be expected given the small numbers of students attending the school in each grade.

All students writing the Grade 3 Mathematics PATs were able in all years, except 1998, to meet the *Acceptable Standard* or the *Standard of Excellence*. This was considerably better than the province and the local jurisdictions. In 1998, 67% of students met the *Acceptable Standard* or better. Although this percentage is below the provincial expectation, it means that four students in the group were unable to attain the *Acceptable Standard*. Proportions of students achieving the *Acceptable Standard* or the *Standard of Excellence* on the Grade 6 Mathematics PAT have fluctuated from slightly below to well above (100% in 1999 and 2000) rates for the province and the local districts.

Proportions of students achieving the *Acceptable Standard* or the *Standard of Excellence* on the Grade 6 Science PAT have also fluctuated from slightly below to well above (100% in 1999 and 2000) rates for the province and the local districts. Proportions of students achieving the *Acceptable Standard* or higher on the Grade 6 Social Studies PAT fluctuated similarly to that of the Grade 6 Science with 100% achieving the *Acceptable Standard* or better in 1999.

SUMMARY OF ACHIEVEMENT ON PROVINCIAL ASSESSMENTS

It is obvious that in the charter schools the percentage of students attaining or exceeding the provincially *Acceptable Standard*, compares very favorably to the percentages in the province as a whole and in the jurisdictions in which the schools are located.

Three of the charter schools met or exceeded the *Acceptable Standard* expectation in all subjects (at grade levels offered in given years and for which at least 6 students wrote the examination) and in all years of operation. These schools are:

ABC Charter School (35 PATs out of 35)

Science Alberta Charter School (8 PATs out of 8)

New Horizons Charter School (50 PATs out of 50)

Five other charter schools met or exceeded the *Acceptable Standard* expectation in at least two thirds of the subjects (at grade levels offered in given years and for which at least 6 students wrote the examination) and in all years of operation. These schools are:

Aurora Charter School (44 PATs out of 46)

Centre for Academic and Personal Excellence (28 PATs out of 38)

Foundations for the Future Charter School (29 PATs out of 36)

Moberly Hall Charter School (19 PATs out of 28)

Suzuki Charter School (22 PATs out of 30)

Almadina Charter School experienced the most difficulty meeting the provincial benchmarks. This is not surprising; given the English as a second language mandate of the school, students are at a distinct disadvantage when writing the PATs. Given the language barrier faced by the students attending Almadina Charter School it is fair to say that students attending the school are performing relatively well.

CHAPTER 4. Cohort Progress and School Effects

In the previous chapter, the first two objectives of the study were addressed. The school results from year to year are compared with those of the jurisdictions and the province. In this way, the school trend lines in relative performance may be viewed and used as guidance for future planning.

It is important to note that results, reported in this manner, are for *different* groups or *cohorts* of students each year. They compare the performance of groups of students in the charter schools with other groups at the same grade levels. Year to year results at any particular grade level may be highly variable because they are obtained from entirely different sets of students.

Objectives three and four of this study necessitated different forms of analyses:

- to compare the scores of "same cohorts" of students (e.g., their relative positions in Grade 3 and Grade 6) to the province and local district scores.
- to calculate the loss or gain, identified on the test results, in each of the charter schools.

This research is best addressed through value-added assessment which utilizes cohort analysis and school effect sizes. By tracking the performance over time of a group of students in a school relative to cohorts in schools of the local jurisdictions and the province, one can more confidently assess the amount of improvement in achievement for which the school is responsible. This measure of the value added by the school is known as *value-added assessment.*

VALUE-ADDED ANALYSIS

Value-added assessment technology was first developed in the mid 1960's by Dr. Gene Glass[1] and adapted in 1984 by Professor William Sanders to analyze the achievement records of four million public school students in Tennessee[2], and is now used by many jurisdictions to report student learning in additional useful ways. It is a statistical tool for reporting scores in terms of growth in student achievement over time to compare with the rate of progress of similar student populations in other schools.[3] In its most advanced form, it

1. Hopkins, K., Hopkins, B. & Glass, G. (1996) *Basic Statistics for the Behavioural Sciences* (3rd Ed.) Allyn and Bacon, Toronto.
2. Sanders, W.L. Saxton, A.M. & Horn, S.P. (1997) *The Tennessee Value-Added Assessment System: a Quantitative Outcomes-Based Approach to Educational Measurement* in Grading Teachers, Grading Schools: is Student Achievement a Valid Evaluation Measure? Ed Jason Millman, Corwin Press, Thousand Oaks, CA, 81-89.
3. Stone, J.E. *Value-Added Assessment: An Accountability Revolution*, in Better Teachers, Better Schools. Thomas Fordham Foundation. Washington, DC. 1999, 239-249.

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employs statistical models to adjust for critical variables beyond the school's control such as student socioeconomic background.[4] The process is most valid when the cohorts are constant, that is, when only those scores of students that remain in the cohort across the time span being measured are considered.

Cohort Analysis

To perform cohort analysis it is necessary to follow the progress of the same group of students over time. The reader is reminded that in this study it was impossible to obtain individual student data to establish true (constant) cohorts writing subject area PATs in Grades 3 (pre-test) and 6 (post-test). The same was true for Grades 6 (pre-test) and 9 (post-test). Aggregate data by subject area from each school, local comparison jurisdictions, and the province are all that are available. These data do not take into account student transience over the three-year period between the pre-test and the post-test. Nor do these data take into account school expansions (e.g., ABC Charter School which doubled its enrolment in 1999) and reductions (e.g., Almadina which had 41 students sit the Grade 6 Mathematics PAT in 1997 but only 16 students wrote the Grade 9 Mathematics PAT in 2000).[5]

Calculating School Effect Sizes

In order to be able to assess the performance of the "cohorts" in the charter schools with "cohorts" in the local comparison districts and the province, we have chosen to calculate effect sizes (based on raw data collected on the PATs) for each cohort using the comparison groups (i.e., the local districts or the province) as the baseline for the comparisons (refer to pp. 2 -5 for the discussion of the method used).

Below, the comparisons of the "same cohorts" of students by school are made to their counterparts in the province and the local jurisdictions (i.e., public and separate). This information is immediately followed by a summary table for each school, presenting only the comparisons in which effect sizes of medium or large magnitude were found.

To calculate the loss or gain of the school cohort(s), the change in effect size (i.e., difference in Cohen's *d* between Grades 3 and 6 or Grades 6 and 9) was calculated for every subject offered in which at least 6 students wrote the PAT. "Cohort" effect size difference scores obtained from same subjects in different years are averaged to report a single score. Each charter school meeting the above criteria is described below in alphabetical order. Boyle Street Education Centre and Science Alberta Charter School are not included in the information that follows.

4. John Holloway, "A Value-Added View of Pupil Performance," *Educational Leadership* (February 2000): 84-86.

5. In an attempt to remedy this problem, we obtained from Alberta Learning data to allow us to estimate the feasibility of an analysis of true cohorts. These data showed that no charter school had a true cohort in 1997/2000 or 1998/2001 in Grades 3/6 or 6/9 of more than 25 students. The Table below shows the number of schools having true cohorts of the size designated. The small size of these true cohorts made it in inappropriate to conduct any value-added analysis based on them.

Number of Charter Schools with "True" Cohorts in Each of Five Size Categories

N	1997/2000		1998/2001	
	Grades 3/6	Grades 6/9	Grades 3/6	Grades 6/9
<6	1	1	1	1
6 – 10	1	1	2	2
11 – 15	2	3	2	1
16 – 20	3			
21 – 25			3	2

ABC CHARTER SCHOOL

Cohort effect sizes, using Cohen's *d*, were calculated for ABC Charter School in Language Arts and Mathematics for children who were in Grade 3 (1997/1998) and then, presumably, in Grade 6 three years later (2000/2001). **Tables 4-1 to 4-4** provide a value-added analysis based on three-year effect size for ABC Charter School compared with the province and each of the local jurisdictions.

Table 4-1 ABC Charter School Effect Sizes Relative to Province

ABC Charter School Relative to Province **Grade 3/6**						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	1.38	1.42	0.04	0.92	1.31	0.39
Mathematics	1.03	0.88	-0.15	0.62	1.58	0.96

Table 4-2 ABC Charter School Effect Sizes Relative to Calgary Public Board of Education

ABC Charter School Relative to Calgary Board of Education **Grade 3/6**						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	1.35	1.24	-0.11	1.02	1.18	0.16
Mathematics	0.94	1.01	0.07	0.7	1.8	1.1

Table 4-3 ABC Charter School Effect Sizes Relative to Calgary Separate Board of Education

ABC Charter School Relative to the Calgary Separate School District **Grade 3/6**						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	1.04	0.98	-0.06	0.66	0.9	0.24
Mathematics	0.49	0.71	0.22	0.35	1.55	1.2

Table 4-4 Cohort Value-added Comparisons between ABC Charter School and the Province, Local Public Board of Education and Local Separate Board of Education

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	97/00						
Lang. Arts	3/6	98/01	0.39	Medium				
Mathematics	3/6	97/00						
Mathematics	3/6	98/01	0.96	Large	1.10	Large	1.20	Large

From **Table 4-4** it is clear that over the cohort years, 1997/2000 and 1998/2001, students at ABC Charter School have experienced no educational effects relative to the comparison groups in most subjects. Students in Grade 3 in 1998 and then in Grade 6 in 2001 experienced a positive effect of medium magnitude in Language Arts relative to the province. In mathematics, the same group experienced a positive effect, large in magnitude, relative to the local school boards and the province.

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for ABC Charter School in Language Arts and Mathematics for students in Grade 3, during 1997/1998, and students in Grade 6 during 2000/2001 respectively.

Table 4-5 Losses or Gains of Cohorts through Value-added Comparisons between ABC Charter School and the Province

Subject	Cohort grade	Cohort years	Change in Cohen's *d*	Avg. change in Cohen's *d*
Lang. Arts	3/6	97/00	0.04	0.22
Lang. Arts	3/6	98/01	0.39	
Mathematics	3/6	97/00	-0.15	0.41
Mathematics	3/6	98/01	0.96	

From **Table 4-5**, it appears that the Grades 3/6 cohort at ABC Charter School experienced a small educational effect gain in Language Arts and a moderate educational effect gain in Mathematics.

ALMADINA CHARTER SCHOOL

Using Cohen's *d*, cohort effect sizes were calculated for Almadina Charter School in Language Arts and Mathematics for children who were in Grade 3 (during 1997/1998) and then, presumably, in Grade 6 three years later (during 2000/2001). Cohort effect sizes were also calculated for Almadina Charter School in Language Arts, Mathematics, Science, and Social Studies for children who were in Grade 6 (during 1997/1998) and then, presumably, in Grade 9 three years later (during 2000/2001) respectively. **Tables 4-6** to **4-9** provide a value-added analysis based on three-year effect size calculations for Almadina Charter School compared with the province and each of the local jurisdictions.

Table 4-6 Almadina Charter School Effect Sizes Relative to Province

Almadina Charter School Relative to Province						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	-1.86	-1.80	0.06	-2.65	-2.61	0.04
Mathematics	-1.20	-1.48	-0.28	-1.12	-2.48	-1.36
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	-2.79	-2.14	0.65	-1.51	-1.1	0.41
Mathematics	-1.31	-0.63	0.68	-1.51	-0.41	1.10
Science	-2.62	-2.33	0.29	-0.21	-1.31	-1.10
Social Studies	-1.84	-1.01	0.83	-1.16	-1.84	-0.68

Table 4-7 Almadina Charter School Effect Sizes Relative to Calgary Public Board of Education

Almadina Charter School Relative to Calgary Public School District						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	-1.89	-1.99	-0.10	-2.55	-2.75	-0.20
Mathematics	-2.37	-1.64	+0.73	-1.02	-2.68	-1.66
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	-2.94	-2.33	0.61	-1.6	-1.34	0.26
Mathematics	-1.31	-0.81	0.50	-1.64	-0.64	1.00
Science	-2.55	-2.40	0.15	-0.31	-1.48	-1.17
Social Studies	-1.91	-1.20	0.71	-1.28	-2.06	-0.78

Table 4-8 Almadina Charter School Effect Sizes Relative to Calgary Separate Board of Education

Almadina Charter School Relative to Calgary Catholic School District.						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	-2.19	-2.25	-0.06	-2.91	-3.01	-0.10
Mathematics	-1.74	-1.93	-0.19	-1.36	-2.89	-1.53
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	-3.34	-2.65	0.69	-2.02	-1.62	0.40
Mathematics	-1.86	-0.92	0.94	-2.21	-0.78	1.43
Science	-2.98	-2.62	0.36	-0.8	-1.66	-0.86
Social Studies	-2.29	-1.72	0.57	-1.78	-2.59	-0.81

Table 4-9 Cohort Value-added Comparisons between Almadina Charter School and the Province, Local Public Board of Education and Local Separate Board of Education

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	97/00						
Lang. Arts	3/6	98/01						
Mathematics	3/6	97/00	-0.28	Med. neg.	0.73	Large		
Mathematics	3/6	98/01	-1.36	Large neg.	-1.66	Large neg.	-1.53	Large neg.
Lang. Arts	6/9	97/00	0.65	Large	0.61	Large	0.69	Large
Lang. Arts	6/9	98/01	0.41	Medium	0.26	Medium	0.40	Medium
Mathematics	6/9	97/00	0.68	Large	0.50	Medium	0.94	Large
Mathematics	6/9	98/01	1.10	Large	1.00	Large	1.43	Large
Science	6/9	97/00	0.29	Medium			0.36	Medium
Science	6/9	98/01	-1.10	Large neg.	-1.17	Large neg.	-0.86	Large neg.
Social Studies	6/9	97/00	0.83	Large	0.71	Large	0.57	Large
Social Studies	6/9	98/01	-0.68	Large neg.	-0.78	Large neg.	-0.81	Large neg.

From **Table 4-9** it appears that Almadina Charter School has provided the Grades 3/6 student cohorts (1997/2000 and 1998/2001) with a comparable educational experience in Language Arts to the province and the local school boards. The Grades 3/6 cohorts experience with respect to Mathematics has been more mixed with the 1997/2000 group receiving an experience that was comparable to their peers in the local separate board of education, much better than that experienced by pupils in the local public board, but not as good as that experienced by students across the entire province. The Grades 3/6 1998/2001 cohort did not fare so well; this group experienced far less value-added growth than their peers in the local boards and the province as a whole.

The Grades 6/9 cohorts from 1997/2000 and 1998/2001 generally experienced a moderate to large educational effect in both Language Arts and Mathematics relative to the local school boards and the province. The Grades 6/9 1997/2000 cohort also experienced a moderately positive educational effect in Science when compared to the province and the local separate board. In Social Studies the same cohort experienced large educational effects relative to students in the province and the local school boards. However, the Grades 6/9 1998/2001 cohort experienced extremely large negative effects in Science and Social Studies when compared to their peers in the local school boards and in the province.

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for Almadina Charter School in Language Arts and Mathematics for students in Grade 3 (during 1997/1998) and students in Grade 6 during 2000/2001 respectively. Losses or gains in cohort effect sizes were also calculated for Almadina Charter School in Language Arts, Mathematics, Science, and Social Studies for students in Grade 6 (during 1997 or 1998) and students in Grade 9 three years later during 2000/2001 respectively.

Table 4-10 demonstrates that Grades 3/6 cohorts at Almadina Charter School experienced virtually the same educational effects as other students throughout the province in Language Arts. These same students experienced a large negative educational effect in the area of Mathematics relative to their provincial peers. The Grades 6/9 cohorts at Almadina experienced a medium size positive educational effect in Language Arts and a large positive educational effect in Mathematics. The Grades 6/9 cohorts did not fare as well in the area of Science where they experienced a medium size negative educational effect. In Social Studies these cohorts of students experienced virtually the same educational effects as their peers throughout the province. Overall, the trend in this analysis is slightly to the positive side.

Table 4-10 Losses or Gains of Cohorts through Value-added Comparisons between Almadina Charter School and the Province

Subject	Cohort grade	Cohort years	Change in Cohen's *d*	Avg. change in Cohen's *d*
Lang. Arts	3/6	97/00	0.06	0.05
Lang. Arts	3/6	98/01	0.04	
Mathematics	3/6	97/00	-0.28	-0.82
Mathematics	3/6	98/01	-1.36	
Lang. Arts	6/9	97/00	0.65	0.53
Lang. Arts	6/9	98/01	0.41	
Mathematics	6/9	97/00	0.68	0.89
Mathematics	6/9	98/01	1.10	
Science	6/9	97/00	0.29	-0.41
Science	6/9	98/01	-1.10	
Social Studies	6/9	97/00	0.83	0.07
Social Studies	6/9	98/01	-0.68	

AURORA CHARTER SCHOOL

Following the same pattern as with the previous school, cohort effect sizes were calculated for Aurora Charter School in Language Arts and Mathematics for children who were in Grade 3 (during 1997/1998) and then in Grade 6 three years later (during 2000/2001) respectively. Cohort effect sizes were also calculated in Language Arts, Mathematics, Science, and Social Studies for children who were in Grade 6 (during 1997 or 1998) and then, presumably, in Grade 9 three years later (during 2000 or 2001 respectively).

Tables **4-11 to 4-14** provide a value-added analysis based on three-year effect size calculations for Aurora Charter School compared with the province and each of the local jurisdictions.

At Aurora Charter School all cohorts 3/6 and 6/9 for all years, 1997/2000 and 1998/2001, with one notable exception have experienced moderate to large positive educational effects relative to their peers in the local jurisdictions and the province. The one exception is the Grades 6/9 cohort from 1997/2000. Interestingly, this cohort experienced mainly strongly negative educational effects relative to peers in the local jurisdictions and the province in all subject areas: Language Arts, Mathematics, Science, and Social Studies.

Table 4-11 Aurora Charter School Effect Sizes Relative to Province

Aurora Charter School Relative to Province						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.60	1.23	0.63	0.60	1.18	0.58
Mathematics	0.39	1.53	1.14	-0.14	1.26	1.40
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	1.06	0.38	-0.68	0.85	1.43	0.58
Mathematics	1.29	0.53	-0.76	0.96	1.43	0.47
Science	1.43	0.51	-0.92	0.37	1.05	0.68
Social Studies	1.47	0.48	-0.99	1.00	1.50	0.50

Table 4-12 Aurora Charter School Effect Sizes Relative to Edmonton Public Board

Aurora Charter School Relative to Public Board						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.84	1.12	0.28	0.84	1.11	0.27
Mathematics	0.43	1.26	0.83	-0.06	1.01	1.07
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	1.23	0.33	-0.90	0.99	1.44	0.45
Mathematics	1.28	0.37	-0.91	0.86	1.30	0.44
Science	1.43	0.39	-1.04	0.23	0.80	0.57
Social Studies	1.41	0.24	-1.17	0.89	1.30	0.41

Table 4-13 Aurora Charter School Effect Sizes Relative to Edmonton Separate Board

Aurora Charter School Relative to Separate Board						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.84	1.12	0.28	0.76	1.06	0.30
Mathematics	0.08	1.28	1.20	-0.32	1.06	1.38
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	1.17	0.28	-0.89	0.86	1.34	0.48
Mathematics	1.10	0.35	-0.75	0.60	1.13	0.53
Science	0.79	0.48	-0.31	0.15	1.11	0.96
Social Studies	1.48	0.48	-1.00	0.87	1.48	0.61

Table 4-14 Cohort Value-added Comparisons between Aurora Charter School and the Province, Local Public Board of Education and Local Separate Board of Education

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	97/00	0.63	Large	0.28	Medium	0.28	Medium
Lang. Arts	3/6	98/01	0.58	Large	0.27	Medium	0.30	Medium
Mathematics	3/6	97/00	1.14	Large	0.83	Large	1.20	Large
Mathematics	3/6	98/01	1.40	Large	1.07	Large	1.38	Large
Lang. Arts	6/9	97/00	-0.68	Large neg.	-0.90	Large neg.	-0.89	Large neg.
Lang. Arts	6/9	98/01	0.58	Large	0.45	Medium	0.48	Medium
Mathematics	6/9	97/00	-0.76	Large neg.	-0.91	Large neg.	-0.75	Large neg.
Mathematics	6/9	98/01	0.47	Medium	0.44	Medium	0.53	Medium
Science	6/9	97/00	0.92	Large	-1.04	Large neg.	-0.31	Med. neg.
Science	6/9	98/01	0.68	Large	0.57	Large	0.96	Large
Social Studies	6/9	97/00	-0.99	Large neg.	-1.17	Large neg.	-1.00	Large neg.
Social Studies	6/9	98/01	0.50	Medium	0.41	Medium	0.61	Large

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for Aurora Charter School in Language Arts and Mathematics for students in Grade 3 (during 1997/ 1998) and those in Grade 6 during 2000/2001 respectively. Losses or gains in cohort effect sizes were also calculated for Aurora Charter School in Language Arts, Mathematics, Science, and Social Studies for students who were in Grade 6 (during 1997/1998) and those in Grade 9 three years later during 2000/2001 respectively.

Table 4-15 Losses or Gains of Cohorts through Value-added Comparisons between Aurora Charter School and the Province

Subject	Cohort grade	Cohort years	Change in Cohen's *d*	Avg. change in Cohen's *d*
Lang. Arts	3/6	97/00	0.63	0.61
Lang. Arts	3/6	98/01	0.58	
Mathematics	3/6	97/00	1.14	1.27
Mathematics	3/6	98/01	1.40	
Lang. Arts	6/9	97/00	-0.68	-0.05
Lang. Arts	6/9	98/01	0.58	
Mathematics	6/9	97/00	-0.76	-0.15
Mathematics	6/9	98/01	0.47	
Science	6/9	97/00	0.92	0.80
Science	6/9	98/01	0.68	
Social Studies	6/9	97/00	-0.99	-0.25
Social Studies	6/9	98/01	0.50	

The analyses in **Table 4-15** suggest that Aurora Charter School Grades 3/6 cohorts experienced large positive educational effects in both Language Arts and Mathematics for the period analyzed. Similarly Grades 6/9 cohorts at Aurora Charter School experienced large positive educational effects in Science. However, in Language Arts, Mathematics, and Social Studies the Grades 6/9 cohorts at Aurora experienced small negative educational effects relative to their peers throughout the province. The overall trend is positive relative to the province.

CAPE CHARTER SCHOOL

Cohort effect sizes were calculated for the CAPE Charter School in Language Arts and Mathematics for children who were in Grade 3 (during 1997/1998) and then in Grade 6 three years later (during 2000/2001) respectively. Since CAPE did not offer Grade 9 programming in 2000, cohort effect sizes were calculated in Language Arts, Mathematics, Science, and Social Studies for children who were in Grade 6 (during 1998) and then in Grade 9 three years later (during 2001).

Tables 4-16 to **4-19** provide a value-added analysis based on three-year effect size calculations for CAPE Charter School compared with each local jurisdiction and the province.

Table 4-16 CAPE Charter School Effect Sizes Relative to Province

CAPE Charter School Relative to Province						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.39	1.11	0.72	-0.72	-0.3	0.42
Mathematics	0.05	0.68	0.63	-0.83	-0.35	0.48
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	0.24	NA	NA	-0.03	1.17	1.2
Mathematics	0.56	NA	NA	0.01	0.59	0.58
Science	1.13	NA	NA	0.33	1.74	1.41
Social Studies	1.46	NA	NA	1.52	1.46	-0.07

Table 4-17 CAPE Charter School Effect Sizes Relative to Public Board of Education

CAPE Charter School Relative to Public Board						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	-0.06	0.61	0.67	-1.18	-0.40	0.78
Mathematics	-0.38	0.46	0.84	-1.22	-0.52	0.70
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	-0.08	NA	NA	-0.48	-0.50	-0.02
Mathematics	0.25	NA	NA	-0.6	-0.84	-0.24
Science	0.77	NA	NA	-0.22	-0.41	-0.19
Social Studies	1.20	NA	NA	1.02	-0.77	-1.79

Table 4-18 CAPE Charter School Effect Sizes Relative to Separate Board of Education

CAPE Charter School Relative to Separate Board						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.06	0.41	0.35	-0.77	-0.50	0.27
Mathematics	0.03	0.10	0.07	-0.65	-0.84	-0.19
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	-0.23	NA	NA	-0.99	0.41	1.40
Mathematics	0.21	NA	NA	-0.71	0.05	0.76
Science	0.59	NA	NA	-0.41	0.74	1.15
Social Studies	7.30	NA	NA	0.74	0.74	0.00

Table 4-19 Cohort Value-added Comparisons between CAPE and the Province, Local Public Board of Education and Local Separate Board of Education

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	97/00	0.72	Large	0.67	Large	0.35	Medium
Lang. Arts	3/6	98/01	0.42	Medium	0.78	Large	0.27	Medium
Mathematics	3/6	97/00	0.63	Large	0.84	Large		
Mathematics	3/6	98/01	0.48	Medium	0.70	Large		
Lang. Arts	6/9	98/01	1.20	Large		Medium	1.40	Large
Mathematics	6/9	98/01	0.58	Large		Medium	0.76	Large
Science	6/9	98/01	1.41	Large			1.15	Large
Social Studies	6/9	98/01			-1.79	Large neg.		

Student cohorts in Grades 3/6 (in 1997/2000 and 1998/2001) and Grades 6/9 (in 1998/2001) experienced a predominance of large positive educational effects relative to students in the province in all subjects except for one. The Grades 6/9 (1998/2001) cohort experienced educational effects comparable to those of students in the province in general. When all of these student cohorts are contrasted with their peers in the local public jurisdiction, only the Grades 3/6 cohorts (1997/2000 and 1998/2001) experienced large positive educational effects. The Grades 6/9 cohort (1998/2001) experienced educational effects in Language

Arts, Mathematics, and Science similar to those students in attendance at the local public school board schools. This same Grades 6/9 cohort experienced a very large negative educational effect relative to students in the local public board schools with respect to Social Studies. When comparing the cohorts from CAPE with those from the local separate school board the results are more mixed but never negative. The Grades 3/6 cohorts (1997/2000 and 1998/2001) experienced moderate positive educational effects in Language Arts, but the difference in educational effects from the local separate school board were not noteworthy with regard to Mathematics. The Grade 6/9 cohort (1998/2001) experienced large educational effects in Language Arts, Mathematics, and Science relative to peers attending local separate school board schools. No noteworthy difference was evidenced for this cohort with respect to Social Studies educational effects.

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for CAPE Charter School in Language Arts and Mathematics for students in Grade 3 (during 1997/1998) and Grade 6 during 2000/2001 respectively. Since CAPE did not offer Grade 9 programming in 2000, losses or gains in cohort effect sizes were calculated for the school in Language Arts, Mathematics, Science, and Social Studies for children who were in Grade 6 during 1998 and then in Grade 9 during 2001.

Table 4-20 shows that CAPE Charter School Grades 3/6 and 6/9 cohorts experienced large positive educational effects in Language Arts, Mathematics and Science for the period analyzed. The CAPE Grades 6/9 cohort experienced virtually no difference in educational effects in Social Studies. The overall trend is positive relative to the province.

Table 4-20 Losses or Gains of Cohorts through Value-added Comparisons between CAPE and the Province

Subject	Cohort grade	Cohort years	Change in Cohen's *d*	Avg. change in Cohen's *d*
Lang. Arts	3/6	97/00	0.72	0.57
Lang. Arts	3/6	98/01	0.42	
Mathematics	3/6	97/00	0.63	0.56
Mathematics	3/6	98/01	0.48	
Lang. Arts	6/9	98/01	1.20	1.20
Mathematics	6/9	98/01	0.58	0.58
Science	6/9	98/01	1.41	1.41
Social Studies	6/9	98/01	-0.07	-0.07

FOUNDATIONS FOR THE FUTURE CHARTER SCHOOL

Since Foundations for the Future Charter School did not open until the fall of 1997, cohort effect sizes were calculated for children who were in Grade 3 during 1998 and then in Grade 6 three years later during 2001 in Language Arts and Mathematics. Cohort effect sizes were also calculated in Language Arts, Mathematics, Science, and Social Studies for children who were in Grade 6 during 1998 and then in Grade 9 three years later during 2001. **Tables 4-21** to **4-24** provide a value-added analysis based on three-year effect size calculations for Foundations for the Future Charter School compared with each of the local jurisdictions and the province.

Table 4-21 FFCA Charter School Effect Sizes Relative to Province

Foundations for the Future Charter School Relative to Province						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	NA	0.62	NA	0.10	0.60	0.50
Mathematics	NA	-0.11	NA	0.49	0.29	-0.2
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	NA	1.23	NA	0.00	1.01	1.01
Mathematics	NA	1.68	NA	0.71	1.48	0.77
Science	NA	2.05	NA	0.98	1.48	0.50
Social Studies	NA	1.81	NA	1.03	1.66	0.63

Table 4-22 FFCA Charter School Effect Sizes Relative to Calgary Public Board of Education

Foundations for the Future Charter School Relative to the Calgary Board of Education						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	NA	0.44	NA	0.2	0.47	0.27
Mathematics	NA	-0.26	NA	0.59	0.09	-0.5
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	NA	1.04	NA	-0.09	0.78	0.87
Mathematics	NA	1.51	NA	0.58	1.25	0.67
Science	NA	1.99	NA	0.88	1.26	0.38
Social Studies	NA	1.62	NA	0.92	1.44	0.52

Table 4-23 FFCA Charter School Effect Sizes Relative to Calgary Separate Board of Education

Foundations for the Future Charter School Relative to Calgary Separate School District						
Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	NA	0.18	NA	-0.16	0.21	0.37
Mathematics	NA	-0.56	NA	0.25	-0.11	-0.36
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	NA	0.72	NA	-0.51	0.5	1.01
Mathematics	NA	1.39	NA	0.01	1.11	1.10
Science	NA	1.77	NA	0.39	1.08	0.69
Social Studies	NA	1.1	NA	0.42	0.91	0.49

The Grade 3/6 student cohort (1998/2001) experienced a medium size positive educational effect in Language Arts relative to its counterparts in the province and in the local public and separate schools. The cohort's experience in Mathematics was much less positive, with the group faring only as well as other students in the province generally and having a

Table 4-24 Cohort Value-added Comparisons between FFCA Charter School and the Province, Local Public Board of Education and Local Separate Board of Education

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	98/01	0.50	Medium	0.27	Medium	0.37	Medium
Mathematics	3/6	98/01			-0.50	Med. neg.	-0.36	Med. neg.
Lang. Arts	6/9	98/01	1.01	Large	0.87	Large	1.01	Large
Mathematics	6/9	98/01	0.77	Large	0.67	Large	1.10	Large
Science	6/9	98/01	0.50	Medium	0.38	Medium	0.69	Large
Social Studies	6/9	98/01	0.63	Large	0.52	Medium	0.49	Medium

medium size negative educational effect experience relative to their peers in the local public and separate schools. The Grade 6/9 student cohort (1998/2001) experienced medium to large positive educational effects in all subject areas relative to their peers in the province and the local school jurisdictions.

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for children of Foundations for the Future Academy who were in Grade 3 in 1998 and those in Grade 6 during 2001 and for students in Grade 6 in 1998 and those in Grade 9 during 2001.

Table 4-25 shows that Foundations for the Future Charter School Grades 6/9 cohort experienced medium to large positive educational effects in Language Arts, Mathematics, Science, and Social Studies for the period analyzed. The Foundations for the Future Charter School Grades 3/6 cohort experienced medium positive educational effect in Language Arts

Table 4-25 Losses or Gains of Cohorts through Value-added Comparisons between FFCA and the Province

Subject	Cohort grade	Cohort years	Change in Cohen's *d*
Lang. Arts	3/6	98/01	0.50
Mathematics	3/6	98/01	-0.20
Lang. Arts	6/9	98/01	1.01
Mathematics	6/9	98/01	0.77
Science	6/9	98/01	0.50
Social Studies	6/9	98/01	0.63

but a small negative educational effect in Mathematics relative to peers from across the province. The overall trend is positive relative to the province.

MOBERLY HALL CHARTER SCHOOL

Since Moberly Hall did not admit students until the fall of 1997, Grades 3/6 cohort data are only available for the 1998/2001 group. Furthermore, since there were no students registered in Grade 9 during the 2001 school year there is no Grade 6/9 cohort. **Tables 4-26** to **4-29** provide cohort effect sizes for children who were in Grade 3 (during 1998) and then in Grade 6 three years later (during 2001) in Language Arts and Mathematics.

The Grades 3/6 cohort at Moberly Hall Charter School appears to have experienced a large size negative educational effect in Language Arts and Mathematics relative to its counterparts in the province, the local public and Catholic boards of education.

Table 4-26 Moberly Hall Charter School Effect Sizes Relative to the Province.

Grade 3/6	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	NA	1.33	NA	1.09	-0.19	-1.28
Mathematics	NA	0.69	NA	-0.16	-0.78	-0.62

Table 4 –27 Moberly Hall Charter School Effect Sizes Relative to Fort McMurray Public School District

Grade 3/6	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	NA	1.01	NA	0.84	-0.31	-1.15
Mathematics	NA	0.53	NA	-0.21	-0.91	-0.70

Table 4 –28 Moberly Hall Charter School Effect Sizes Relative to Fort McMurray Separate School District

Grade 3/6	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	NA	0.87	NA	0.84	-0.40	-1.24
Mathematics	NA	0.44	NA	-0.24	-0.81	-0.57

Table 4 –29 Cohort Value-added Comparisons between Moberly Hall Charter School and the Province, the Local Public Board of Education, and the Local Separate Board of Education.

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	98/01	-1.28	Large neg.	-1.15	Large neg.	-1.24	Large neg.
Mathematics	3/6	98/01	-0.62	Large neg.	-.70	Large neg.	-0.57	Large neg.

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for children who were in Grade 3 in 1998 and then in Grade 6 during 2001. No further cohort effect sizes were calculated since there were no students in Grade 9 during the 2002 school year at Moberly Hall Charter School.

From **Table 4-30,** it appears that the Grades 3/6 cohort at Moberly Hall Charter School experienced a strong negative educational effect in Language Arts and a moderate negative educational effect in Mathematics.

Table 4 – 30 Losses or Gains of Cohorts through Value-added Comparisons between Moberly Hall Charter School and the Province.

Subject	Cohort grade	Cohort years	Change in Cohen's *d*
Lang. Arts	3/6	98/01	-1.28
Mathematics	3/6	98/01	-0.62

NEW HORIZONS CHARTER SCHOOL

Cohort effect sizes were calculated for New Horizons Charter School in Language Arts and Mathematics for children who were in Grade 3 (during 1997/1998) and then in Grade 6 three years later (2000/2001) respectively. Cohort effect sizes were also calculated in Language Arts, Mathematics, Science, and Social Studies for children who were in Grade 6 in 1997/1998 and then in Grade 9 three years later in 2000/2001. (See **Tables 4-31** to **4-34**.)

Table 4-31 New Horizons Charter School Effect Sizes Relative to Province

Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	1.55	1.96	0.41	2.36	2.19	-0.17
Mathematics	1.18	0.96	-0.22	1.80	1.59	-0.21
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	2.14	2.19	0.05	1.54	2.24	0.70
Mathematics	0.53	0.74	0.21	1.04	1.77	0.73
Science	0.52	1.23	0.71	1.27	1.06	-0.21
Social Studies	0.89	2.10	1.21	1.39	1.51	0.12

Table 4-32 New Horizons Charter School Effect Sizes Relative to Elk Island Public School Division

Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	1.05	1.43	0.38	1.88	1.71	-0.17
Mathematics	0.68	0.48	-0.20	1.39	1.11	-0.28
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	1.73	1.79	0.06	1.10	2.03	0.93
Mathematics	0.14	0.46	0.32	0.49	1.62	1.13
Science	0.14	0.94	0.80	0.70	0.81	0.11
Social Studies	0.48	1.87	1.39	0.89	1.26	0.37

Table 4-33 New Horizons Charter School Effect Sizes Relative to Elk Island Catholic School Division

Grade 3/6						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	1.02	1.57	0.55	1.83	1.67	-0.16
Mathematics	0.75	0.66	-0.09	1.23	1.15	-0.08
Grade 6/9						
	1997 (Gr. 6) effect size	2000 (Gr. 9) effect size	Cohort effect size	1998 (Gr. 6) effect size	2001 (Gr. 9) effect size	Cohort effect size
Language Arts	1.62	1.78	0.16	1.24	2.07	0.83
Mathematics	0.26	0.76	0.50	0.60	1.84	1.24
Science	0.28	1.14	0.86	0.97	0.95	-0.02
Social Studies	0.61	1.87	1.26	1.00	1.44	0.44

Table 4-34 Cohort Value-added Comparisons between New Horizons Charter School and the Province, the Local Public Board of Education, and the Local Separate Board of Education.

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	97/00	0.41	Medium	0.38	Medium	0.55	Medium
Lang. Arts	3/6	98/01						
Mathematics	3/6	97/00						
Mathematics	3/6	98/01			-0.28	Med. neg.		
Lang. Arts	6/9	97/00						
Lang. Arts	6/9	98/01	0.70	Large	0.93	Large	0.83	Large
Mathematics	6/9	97/00			0.32	Medium	0.50	Medium
Mathematics	6/9	98/01	0.73	Large	1.13	Large	1.24	Large
Science	6/9	97/00	0.71	Large	0.80	Large	0.86	Large
Science	6/9	98/01						
Social Studies	6/9	97/00	1.21	Large	1.39	Large	1.26	Large
Social Studies	6/9	98/01			0.37	Medium	0.44	Medium

The 1997/2000 Grades 3/6 cohort at New Horizons Charter School appears to have experienced a moderate size positive educational effect in Language Arts relative to its counterparts in the province and the local jurisdictions. In Mathematics, this cohort seems to have experienced the same value as those students in the local jurisdictions and the rest of the province. The same can be said for the 1998/2001 Grades 3/6 cohort with respect to Language Arts. The Mathematics experience for this cohort was similar when comparisons are drawn with the province and the local separate schools. However, when this cohort is compared with the value experienced in Mathematics by students at local public schools, their experience was moderately negative. For the Grades 6/9 cohorts (1997/2000 and 1998/2001) the majority of educational effects were large and positive across all subjects. Some of the educational effects experienced by the Grades 6/9 cohorts were small enough to not be discernible from those experienced by students in the province or the local jurisdiction schools, both public and separate.

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for New Horizons Charter School in Language Arts and Mathematics for children in Grade 3 (during 1997 or 1998) and those in Grade 6 during 2000 or 2001 respectively. Losses or gains in cohort effect sizes were also calculated for New Horizons in Language Arts, Mathematics, Science, and Social Studies for children in Grade 6 (during 1997 or 1998) and those in Grade 9 three years later, in either 2000 or 2001.

Table 4-35 Losses or Gains of Cohorts through Value-added Comparisons between New Horizons Charter School and the Province

Subject	Cohort grade	Cohort years	Change in Cohen's *d*	Avg. change in Cohen's *d*
Lang. Arts	3/6	97/00	0.41	0.12
Lang. Arts	3/6	98/01	-0.17	
Mathematics	3/6	97/00	-0.22	-0.22
Mathematics	3/6	98/01	-0.21	
Lang. Arts	6/9	97/00	0.05	0.38
Lang. Arts	6/9	98/01	0.70	
Mathematics	6/9	97/00	0.21	0.47
Mathematics	6/9	98/01	0.73	
Science	6/9	97/00	0.71	0.25
Science	6/9	98/01	-0.21	
Social Studies	6/9	97/00	1.21	0.67
Social Studies	6/9	98/01	0.12	

The analyses in **Table 4-35** suggest that New Horizons Charter School Grades 3/6 cohorts experienced small positive educational effects in Language Arts and small negative educational effects in Mathematics for the period analyzed. Grades 6/9 cohorts at New Horizons Charter School experienced small positive educational effects in Science, medium positive educational effects in Language Arts and Mathematics, and large positive educational effects in Social Studies. The overall trend is positive relative to the province.

SUZUKI CHARTER SCHOOL

Cohort effect sizes, using Cohen's *d*, were calculated for Suzuki Charter School in Language Arts and Mathematics for children who were in Grade 3 during 1997/1998 and then in Grade 6 three years later during 2000/2001 respectively. **Tables 4-36** to **4-39** provide a value-added analysis based on three-year effect size calculations for Suzuki Charter School compared with the province and each of the local jurisdictions.

Table 4-36 Suzuki Charter School Effect Sizes Relative to Province

Suzuki Charter School Relative to Province **Grade 3/6**						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.73	1.72	0.99	-0.14	0.58	0.72
Mathematics	0.6	1.96	1.36	-0.39	-0.2	0.19

Table 4-37 Suzuki Charter School Effect Sizes Relative to Edmonton Public Board of Education

Suzuki Charter School Relative to Edmonton Public School District **Grade 3/6**						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.98	1.62	0.64	0.1	0.51	0.41
Mathematics	0.65	1.7	1.05	-0.31	-0.45	-0.14

Table 4-38 Suzuki Charter School Effect Sizes Relative to Edmonton Separate Board of Education

Suzuki Charter School Relative to Edmonton Catholic School District **Grade 3/6**						
	1997 (Gr. 3) effect size	2000 (Gr. 6) effect size	Cohort effect size	1998 (Gr. 3) effect size	2001 (Gr. 6) effect size	Cohort effect size
Language Arts	0.98	1.62	0.64	0.02	0.46	0.44
Mathematics	0.3	1.71	1.41	-0.57	-0.4	0.17

Table 4-39 Cohort Value-added Comparisons between Suzuki Charter School and the Province, Local Public Board of Education and Local Separate Board of Education

Subject	Cohort grade	Cohort years	Province		Local Public Board of Education		Local Separate Board of Education	
			Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect	Change in Cohen's *d*	Magnitude of effect
Lang. Arts	3/6	97/00	0.99	Large	0.64	Large	0.64	Large
Lang. Arts	3/6	98/01	0.72	Large	0.41	Medium	0.44	Medium
Mathematics	3/6	97/00	1.36	Large	1.05	Large	1.41	Large
Mathematics	3/6	98/01						

The Grade 3/6 student cohorts (1997/2000 and 1998/2001) experienced medium to large size positive educational effects in Language Arts relative to their counterparts in the province and in the local public and separate schools. In Mathematics, the 1997/2000 cohort experienced large size positive educational effects relative to the experiences of students in the local jurisdictions and the province. The 1998/2001 cohort received educational effects at par with those experienced by students in the local jurisdictions and the province.

Losses or gains in cohort effect sizes, using Cohen's *d*, were calculated for Suzuki Charter School in Language Arts and Mathematics for children in Grade 3 during 1997/1998, and those in Grade 6 during 2000/2001 respectively.

From **Table 4-40**, it appears that Grades 3/6 cohorts at Suzuki Charter School experienced a large positive educational effect in Language Arts and Mathematics. The trend in this analysis is clearly positive.

Table 4-40 Losses or Gains of Cohorts through Value-added Comparisons between Suzuki Charter School and the Province

Subject	Cohort grade	Cohort years	Change in Cohen's *d*	Avg. change n Cohen's *d*
Lang. Arts	3/6	97/00	0.99	0.86
Lang. Arts	3/6	98/01	0.72	
Mathematics	3/6	97/00	1.36	0.78
Mathematics	3/6	98/01	0.19	

OVERVIEW

While it is not easy to summarize the results from eight very different schools, some way of drawing the preceding comparisons together is useful. In order to do this we have taken the total number of comparisons made for each school and calculated the proportion showing positive, negative and non-significant differences between that school and the province and local jurisdictions. **Table 4-41** presents the overall picture of this analysis.

Table 4-41 Overall Count of Positive, Negative and Non-Significant Comparisons

School	Table ref	Total No. of comparisons	Not significant		Medium or Large Positive		Medium or Large Negative	
			No.	%	No.	%	No.	%
ABC	4-4	12	8	**66**	4	**33**	-	-
Almadina	4-9	36	8	**22**	18	**50**	10	**28**
Aurora	4-14	36	-	-	25	**69**	11	**31**
CAPE	4-19	24	5	**21**	18	**75**	1	**4**
FFCS	4-24	18	1	**6**	15	**83**	2	**11**
Moberly Hall	4-29	6	-	-	-	-	6	**100**
New Horizon	4-34	36	16	**44**	19	**53**	1	**3**
Suzuki	4-39	12	3	**21**	9	75	-	-
Totals		180	41	**23**	108	**60**	31	**17**

Overall, 60 percent of comparisons showed the student cohorts in the charter school to have a significantly greater value-added result than those in the province as a whole or in the local jurisdictions. Of the eight schools for which this analysis was performed, five had at least half of their cohort comparisons in a significantly positive direction. One had only four out of twelve cohort comparisons in a significantly positive direction. The two remaining schools showed, in one case, mainly non-significant differences from the provincial and local jurisdictions, and in the other, exclusively negative ones. It should be noted, however, that the school showing only negative direction comparisons could be examined for only one cohort in two subjects—that is, the number of possible comparisons was much smaller than for any other school. Its results may therefore be considered poor indicators of this school's overall quality.

CHAPTER 5. Other Measures of Achievement

The fifth objective of the study was to report on other measurable outcomes related to achievement not measured by the provincial tests. As most charter schools have unique learning goals spelled out in the terms of their Charter, which help to distinguish them from conventional neighbourhood schools, it was deemed valuable to explore how the charter schools collected data and reported on these outcomes as well.

LOOKING BEYOND PROVINCIAL TEST SCORES

Society expects its schools to produce well-educated graduates able to participate successfully in the global economy and in civic democracy. The education system articulates very broad goals which encompass not only intellectual growth, but social, career, and citizenship development for students. As learning can be measured in multiple ways, the importance of developing tools and systems to examine and report student growth along many dimensions of achievement is evident.

The Auditor General of Alberta specifically singled out this obligation for charter schools as an element of their accountability[1]. For highly specialized schools, especially those serving at-risk students, such as Boyle Street Education Centre, the burden of identifying other attainable measures of success is high without limiting such students' potential by low expectations for their academic attainment.

The specific tests used by each school, where they were known, were mentioned in the profiles of the schools presented earlier.

Other, softer measures of achievement were provided by participants from all schools. The two common measures consisted of parent satisfaction and of student satisfaction surveys. These are reported each year in the school Annual Education Results Reports and are dealt with in detail in previous research by Bosetti et al.[2] School representatives also told us about measures of achievement which are better described as measures of accomplishments. These are provided in detail, by school, below.

ABC CHARTER SCHOOL

In its charter, ABC Charter School emphasizes 14 objectives centering on: (a) establishing and maintaining a school culture that values, promotes, and recognizes excellence; (b) fostering development of students' full complement of intelligences; (c) providing a safe, sup-

1. Alberta Auditor General, Accountability in the Education Sector. 1997. cited in Bosetti et al. *Canada's Charter Schools.* SAEE. 1999, 157.
2. Bosetti, B.L et al. *Canadian Charter Schools at the Crossroads.* SAEE. 2000.

portive learning environment acknowledging similarities and honouring differences among students; promoting the development of critical and creative thinking, problem solving, and decision-making; (d) utilizing broad-based themes, issues or problems which serve to integrate knowledge within and across various disciplines.[3] Assessment of these broad objectives is to be done "by using appropriate and specific criteria through self-appraisal, criterion referenced and standardized instruments."[4] The charter goes on to describe a variety of measurement instruments that will be used; these are: (a) student portfolios, (b) interview and/or observational data (teachers, students, parents, mentors), (c) teacher-made tests, (d) basic competences checklists, (e) provincial achievement tests, (f) student progress reports, (g) personalized educational programming plans, and (h) contracts or independent study records. Although these are all valid assessment tools on an individual basis, not all of these are appropriate for judging the quality of the school as a whole. The evidence cited below speaks to the objectives promoted at the ABC Charter School.

The principal of ABC Charter School was clear that one of their accomplishments centered on how teachers at the school were able to amply address the academic and social needs of the highly intelligent children in attendance. For example, ABC Charter School was presented the Elementary School Aggregate Award at the 2001 Calgary Science Fair. This award, presented by Anadarko Oil Corporation, recognizes the school achieving the highest point average in Grades 5 and 6. Students won no fewer than eight gold medals, ten silver medals, two bronze medals, and five participation medals at the Fair. Three of these students also received cash awards for the projects they presented at the Fair.

Other measures of academic achievement were mentioned during our interview. These included the use of the province's Curriculum Assessment Materials Package (CAMP) for students in those grades in which provincial achievement tests are not written. A weakness of the CAMP, as seen by the interview respondents, is that too many of the junior high students were reaching the ceilings of these assessment materials. Attempts to obtain these test results from the school were not fruitful.

During an interview, representatives from the school said that socially many of their students had difficulty. One respondent noted that many of the students find this is the first environment in which they don't feel particularly strange because others who are equally unique surround them. Another respondent, at the same interview, echoed, "We're creating a haven for kids" who might not fit in easily in regular schools.

At the time of data collection, another set of measures was being developed at the school to collect data on the multiple intelligences of each student. The results of these measures are unknown at this time.

3. ABC Charter Public School, 1998, pp. 8-10.
4. Ibid, p. 10.

ALMADINA CHARTER SCHOOL

The primary focus of the Almadina Charter School is on E.S.L student instruction with "bilingual staff members competent to teach E.S.L."[5] The school's charter is also clear that student success is best attained "by actively involving parents in every aspect of the educational process."[6] The charter specifies the Alberta PATs at Grades 3, 6, and 9 as it primary measures of success (p. 21). Individual PAT scores are discussed with parents, and parents have the opportunity to indicate their satisfaction with the school through parent satisfaction surveys.

Almadina Charter School has seen a great deal of volatility in terms of administrator turnover during the past several years. This discontinuity has resulted in many strands of data collection being started and ended prematurely. During the 2001-02 school year, student behaviour has been identified as a central issue needing to be addressed at the school. The principal told us that a good school citizenship program was being implemented and that its effects were being monitored through a tracking system in which numbers of referrals and types of behaviours and misbehaviours were noted. At the time of the interview, the principal thought the program was improving student behaviour at the school, but there were simply insufficient data to make any conclusive claims.

If one turns to enrolment trends at the school as a proxy measure for perceived value provided by the school, the situation appears very positive. Student enrolment has progressively increased with enrolments of 280 in 1999-2000, 305 in 2000-01, and 324 during the 2001-02 school year. It is clear that an increasing number of parents and students perceive Almadina Charter School to be a good place to attend.

AURORA CHARTER SCHOOL

Aurora Charter School's focus, as evidenced in its charter document (1996), is on improving student learning in Language Arts and Mathematics through a "highly structured, teacher-directed course delivery system ... stressing the importance of neat, high quality work in [student] notebooks" (p. 19). This focus is addressed not only by the teachers in the school but also by the students' parents as they support the work of the teacher at home. Measures described in the charter for assessing the school's accomplishments are: (a) PATs, (b) participation in academic competitions, (c) participation in extra-curricular events, (d) school attendance rates, (e) parent satisfaction surveys, and (d) post-secondary performance of graduates (pp. 22-23).

One of the primary goals specified in the Aurora Charter School charter is "to have and be known for a superior language arts program". Evidence of a high quality program has been collected by the school since 1999 using the VR and L batteries of the Canadian Test of Basic Skills (CTBS). With the exception of two Grade 8 classes from 1999 (which tested at 4 months below expected grade level), all classes of students attending Aurora Charter School have tested anywhere from 2 to 13 months above grade level on the VR and L bat-

5. Almadina Charter School, 1996, p. 12.
6. Ibid, p. 14.

teries of the CTBS (note that at the Grade 9 level only the reading comprehension battery has been used).

In the area of mathematics, two measures have been used to assess accomplishment at Aurora Charter School. The first measure is the number of students ranking at 80% or above in the Pascal Mathematics Competition – a Canadian national competition hosted by the University of Waterloo. As can be seen in **Table 5-1**, these data have been collected since 1998 and the school has had anywhere from two to five children each year achieving the 80% benchmark. In a second mathematics competition, the Gauss Mathematics Competition also hosted by the University of Waterloo, in which the school participates, results are similar (see **Table 5-2**).

Finally, the perception by a great number of people in the community is that Aurora Charter School is delivering high quality education to its students. Between October of 1996 and October 30th of 2001, the waiting list for students (or parents) wanting admission has ranged from 254 to a high of 786.

Given the relatively short time that the Aurora Charter School has been in existence, it is impossible to assess the post-secondary accomplishments of its graduates.

Table 5-1 Students achieving the 80% benchmark in the Pascal Mathematics competition.

Year	Number of Students	
	Target	Actual
June 1998	2	2
June 1999	4	5
June 2000	6	4
June 2001	8	4

Table 5-2 Students achieving the 80% benchmark in the Gauss Mathematics competition.

Year	Number of Students	
	Target	Actual
June 1998	2	2
June 1999	4	2
June 2000	6	4
June 2001	8	3

BOYLE STREET EDUCATION CENTRE

As has already been noted earlier in this report, the Boyle Street Education Centre's purpose is to enable at-risk students to re-enter the public education system.

As such, student measures are highly individualized but can be classified into two main streams, those providing indications of "literacy and numeracy achievement levels" and of "personal growth and re-integration into the mainstream."[7]

At this school every student who graduates is considered a success. In fact, the principal was adamant that "every credit earned" and even just getting the students they have enrolled to attend on a regular basis is success. Over the past several years a number of students have graduated with all the required Grade 12 credits. At the end of the 2001-02 school year, 13 students participated in the graduation ceremony – not all of these students had completed all the credit requirements for the Grade 12 diploma, however, they were all within a few credits of completion. Some of the students from Boyle Street Education Centre have gone on to post-secondary institutions (such as Norquest College) to continue their education. One recent graduate was completing his second year of university at the University of Alberta. The fact that any young people are re-engaged in education is without a doubt an enormous educational success. The Boyle Street Education Centre can claim many such successes.

CENTRE FOR ACADEMIC AND PERSONAL EXCELLENCE (CAPE)

As stated earlier in this report, the goal of the Centre for Academic and Personal Excellence is captured in its name. To achieve this goal the school makes use of (a) integrated learning units and (b) individualized programming focused on the individual needs of students (1995, 2000). Measures of success at CAPE are supported by (a) individual growth plans, (b) student accountability for behaviour through behaviour contracts signed by students and their parents, and (c) an emphasis on "competitive endeavours" (2000, p. 9).

In an interview with representatives from the Centre for Academic and Personal Excellence, we were told that the school makes use of two other measures of academic achievement with its students: CTBS and CAMP. CTBS testing is conducted in September and then again in June of each school year to see what growth has occurred. CAMP tests are administered in all grades which do not participate in the Provincial Achievement Testing. Results obtained on the CAMP tests for Language Arts, Mathematics, Social Studies, and Science are incorporated into students' final course marks. Although the school has collected these data they exist in individual student's cumulative files and not in anonymous aggregate form, consequently these data were not released to us.

The principal and superintendent of the Centre for Academic and Personal Excellence were able to share several successes experienced in the school over the recent years. We were given anecdotal evidence of a child who was coaxed to attend the school in September 2000 not speaking a word to anyone. By mid-year this child was speaking to one teacher at the school – this was a feat that had not been accomplished by any previous school the child had attended.

7. Boyle Street Education Centre, 1995, p. 19.

FOUNDATIONS FOR THE FUTURE CHARTER SCHOOL

The Foundations for the Future Charter School is best characterized as a "back-to-the-basics" school catering to children of average abilities. The features of its charter are (a) "direct instruction, (b) multi-sensory teaching, (c) sequential mastery learning, (d) explicit phonics, (e) structured environment, gender separated teaching for secondary math and science, (f) explicit behavioural expectations, (g) parental input at all levels of the school and its classrooms, and (h) a school dress code." Its primary assessment tool is the Alberta PAT at Grades 3, 6, and 9.

The Foundations for the Future Charter School has been conducting CTBS testing of its students, as an alternate measure of academic achievement to the provincial achievement tests, since the school opened. However, as was the case with other schools, these data exist in students' cumulative files and not in anonymous aggregate form. For this reason the data were not released to us. The point was also made that the school uses frequent testing as a diagnostic tool. The philosophy is that if a child doesn't understand the curriculum, the teacher will diagnose the problem and address the need.

Other measures of achievement at the school are seen in a variety of ways. First, the school's excellent reputation has generated a very extensive waiting list of children (and parents). Sources vary as to the exact size of the waiting list, but the lowest estimate placed it at 3500 students and the highest estimate placed it at 4400 students. A second indication of the success of the school is evident in the "Calgary Board of Education's move to open a school modeled after the Foundations for the Future Charter School using teacher-directed instruction." Third, it was pointed out that although the school draws children of average abilities, it is a school of choice; consequently, discipline problems are very rare at the school. Fourth, staff turnover at the school is low; when a vacancy does appear there has always been a very large pool of applicants.

MOBERLY HALL CHARTER SCHOOL

The Moberly Hall Charter School (1997) claims the individuality of its charter lies in the ability of school staff to provide "an alternative form of quality education based on the unique learning styles of individual students" (p. 22). In addition to the typical measures used in schools across the province (e.g., PAT attainment; percentages of students receiving high school diplomas or certificates; percentages of students entering post-secondary institutions, student, parent, and teacher satisfaction surveys), Moberly Hall Charter School assesses each of its students with a learning styles inventory.

Moberly Hall Charter School has not actively administered any supplemental tests for assessing student achievement beyond the provincial achievement tests. Students are tested, as per the central premise of the school's Charter, to assess their preferred learning styles. This information is for diagnostic purposes to assist the teacher in planning how best

to deliver curriculum to the students in their classes. Students are also made aware of their preferred learning styles so that they can further develop non-preferred learning styles.

Other measures collected by the school fall into the parent satisfaction and student satisfaction categories. Very close to 100% of parents and 100% of students are very satisfied or satisfied with the educational experiences Moberly Hall Charter School is providing to its students.

NEW HORIZONS CHARTER SCHOOL

The New Horizons Charter School mission is to "enable gifted students to strive for excellence in an environment which is low-anxiety, positive, and supportive of the individual." To assess the extent to which the various goals supporting the mission of the school are accomplished, the following indicators are identified in the school's charter: (a) PATs; (b) teacher developed pre- and post-tests; (c) student writing files; (d) student contracts and project plans for special focus development (as part of individualized program plans); (e) students complete age and grade appropriate inventories, questionnaires, thinking tasks, interest, personality, and ability inventories (these are then analysed by the students); (f) students keep records of their own strengths and weaknesses relative to group processes and monitor their own skill development.

As was the case with many other charter schools, New Horizons Charter School collects extensive achievement data from its students in Grades 2, 4, and 5 using the Canadian Achievement Test (CAT). Once again, these data were present in students' files and had not been organized such that a school profile could be drawn out without expending considerable time and resources. There are, however, many other measures of accomplishment evident at the school.

Two students attending the school received, during the 2000-01 school year, prestigious awards. One child was a Finalist in the CBC Radio Poetry Contest while a second child was the recipient of the Northern Alberta International Children's Festival and Telus – Cybertales Educational Writing Program award. Graduates of New Horizons Charter School attending a local public high school have attained the following accomplishments for the 2000-01 school year:

1. one student in Grade 10 was one of the best writers the high school had ever had,
2. four students were among the *top ten* students attending the high school,
3. of the four students mentioned above, one has attained the second highest average in the high school and plays rugby and volunteers at the Cross Cancer Hospital.

At a second local high school eight different students are named as award and scholarship winners including three Rutherford Scholarship winners. It should be noted that these eight students received a total of 41 separate awards!

SCIENCE ALBERTA SCHOOL

The Science Alberta Charter School focuses on students in Grades 4 to 8 performing at or above grade level. Curriculum is taught in an integrative manner emphasizing "the interrelated nature of knowledge" (p. 9), especially among the sciences, mathematics, technology, the arts and humanities.[8]

Interview respondents at the Science Alberta Charter School were very clear that they do not track student performance using any standardized tests other than the provincial achievement tests. Instead, and in keeping with the main thrust of the school's charter, students in the school are given a broad problem on which to focus (e.g., during the 2000-01 school year students looked at energy conservation and at human performance). Students are to be responsible for identifying specific sub-questions related to the main topic which they pursue in detail. They develop an understanding around the specific questions and then they come up with some conclusions and create an action product related to that. The projects are then presented to a panel of judges consisting of members of the local scientific community in a format referred to as a Gallery of Learning. The quality of the projects, and consequently of the school, is directly judged by a panel of scientific experts from the community in which the school is situated.

A second measure of student achievement is in place at the Science Alberta Charter School, that of portfolios. "Portfolio binders were set up for each student in the areas of Math/Science, Humanities and Quest. These portfolios became the archive of those artifacts which represented a body of evidence of learner outcomes for each student."[9]

These portfolios form the basis of student-led and formative parent-teacher conferences.

SUZUKI CHARTER SCHOOL

The Suzuki Charter School was granted its charter on the basis of incorporating the Suzuki principles of learning to play a musical instrument into all aspects of curriculum learning. The school's charter specifies a variety of indicators, in addition to the PATs, student and parent satisfaction surveys, appropriate for demonstrating excellence. These include (a) demonstrations and application of student learning through performances, fairs, and interschool opportunities (e.g., Science Olympics); and (b) demonstration of student music talent throughout the community by providing public performances.

In keeping with the nature of the measures specified in the school's charter, interview respondents from the school were very clear that conventional standardized achievement tests are not appropriate given their goals at the school. It is not surprising that a very important measure of achievement at the Suzuki Charter School is judged to be the public performances in which the students participated. The principal noted that "last April and May our children played six concerts for the Edmonton Symphony. There were 109 kids [every child in the school] on the stage six times." This sort of performance is by invitation only and is expected to be at a professional level. During the 2000-01 school year, the

8. Science Alberta Foundation Board, 1999.
9. Science Alberta School Annual Report. 2001, 6.

school's choral students were part of the Cantemus Canada production of The Magic Flute.

The following testimonials attest to the quality of the programming at Suzuki Charter School:

> After a year of hard work, the collaboration between the Suzuki Charter School and the E.S.O. finally came together this week. The Suzuki students performed six times with the orchestra to near sell out audiences at the Winspear Centre. The response has been overwhelming and the skill and maturity of these young musicians have impressed both the musicians and the audiences. Bravo, Suzuki Charter School![10]
>
> Allan Gilliland (Composer in Residence of the Edmonton Symphony Orchestra)

> We at the E.S.O. were pleased to welcome the student of the Suzuki Charter School to our stage. They impressed us by being beautifully behaved both on and off the stage. Their musical preparation was of the highest order, and the respect for the art of music was obvious in student and teachers alike. Congratulations to all for a job well done![11]
>
> David Hoyt (Resident Conductor of the Edmonton Symphony Orchestra)

10. Suzuki Charter School Annual Report. 2001, 13.
11. Ibid.

SUMMARY

While virtually all charter schools are using measures other than the provincial achievement tests to measure academic progress, none of them record these results in a manner that would allow for statistical or comparative use. Generally, school-generated tests are used to determine whether a student is appropriate for admission to a particular school or to assess progress during the years in which the achievement test is not written. In the latter cases, individual results are examined to determine whether a student is continuing to make satisfactory progress. The particular results tend to be placed in the individual student's file.

Generally, the charter schools in this province are collecting data as per the principles stated in their approved charters. Furthermore, student and parent satisfaction survey data collected by the schools suggest that the primary clients of the schools – the students and their parents – are satisfied with the academic and social outcomes provided to students by the various charter schools. Some schools also evidence their high level of parental and community support by the very long waiting lists of people wanting their children to attend.

CHAPTER 6. Conclusions

The information presented in the previous chapters provides a comprehensive picture of academic achievement in charter schools in Alberta and permits us to draw a number of conclusions. From these conclusions and our experiences in conducting the study we are able to make a number of suggestions relating to policy and to further research.

OVERALL FINDINGS

The main focus of this study was on the level of achievement of students in charter schools in Alberta compared to students in the province as a whole and in the public and separate school systems within which the charter schools are located. We also examined a number of other indicators of achievement, rather more unique to the schools themselves. From the analyses we have conducted we draw seven conclusions.

1) Overall, the students in most of the charter schools appear to be performing very well on the standardized provincial achievement tests.

2) The children attending the majority of the charter schools scored above the provincial average in all tested subjects at all grade levels. Furthermore, more of them surpassed the provincially-set benchmarks than their counterparts in the adjoining systems.

3) Where cohort comparisons could be made in eight schools they show that, in general, students in all save one charter school have experienced growth equal to or greater than that experienced by students in the province as a whole or in the schools of the local jurisdictions. It is our judgement, however, that cohort analysis in these schools is premature, given the instability of the enrolment in the early years and given the small number of students that constitute a true cohort over any three-year span.

4) The changes in the effect size calculations found in the charter schools generally indicate that there has been a positive growth from 1997 to 2000 and from 1998 to 2001. The size of the overall positive educational effects varies from quite small in some cases to very large in others. There are, of course, a number of situations where the effects observed were negative.

5) Comparisons of effect size between charter and non-charter schools should be done with considerable caution. Generally, the population of students in non-charter schools

is less homogeneous on some of the critical educational variables than in the charter schools. One can, for example, assume a very high parental support and involvement in the charter schools, a factor which research demonstrates contributes significantly to educational achievement.

6) All the charter schools in the study have adopted or developed ways of measuring progress or achievement other than the provincial achievement tests. These are varied and in many cases designed to reflect the school's particular focus and objectives. However, they may not always be collected consistently over time in ways that would facilitate systematic review and decision making.

7) As centres of innovation, charter schools have been very successful in this province. Public and separate school jurisdictions need to pay close attention to the niches these schools occupy and determine how they might better address the needs these of these sectors.

In sum, most of these charter schools are successful as judged by provincial achievement test results, and all of them are successful on individually developed measures and parent and student satisfaction.

DISCUSSION

As we conducted the study we became aware of a number of factors that should be kept in mind as one examines the study findings. Many of these insights, if we can call them that, were drawn to our attention during our interviews with the charter school administrators. These people were uniformly interested in ensuring that the picture that was painted of the charter schools would reflect the facts that they are unique, very young, and in many cases, experiencing significant and pervasive change. They know that they are doing very well, generally, and believe that in time they will be even more effective in realizing the objectives set out in their charters. Participants in many of our interviews emphasized that comparisons with system or provincial averages could be misleading for a number of reasons. The comparisons were between a single charter school, with a specific mandate and focus, and a select group of students in many cases, and the mean scores from either the entire province or large school jurisdictions. It was not possible to conduct comparisons between an individual charter school and a non-charter school.

We are unable to ignore the reality that it is impossible to rule out systematic bias as a source of relatively high or low student achievement in the charter schools. In fact, the charters under which the schools operate typically suggest that such bias is likely to occur. This is not meant as a criticism of charter schools in this province, but as an observation which points to the cautions that need to be in place when we attempt to draw comparisons between charter schools and public, separate, or even private schools in this province.

Charter schools serve a critical role in this province in ensuring that alternatives are available to families who wish to have their children educated, using approaches that are not the

mainstream. As such they serve particular niches in the educational community. Not all are academically oriented, primarily. In some cases it is inappropriate to measure their effectiveness by examining their scores on provincial achievement tests. This fact was brought to our attention by a number of charter school administrators.

A quantitative evaluation of charter school performance may never be appropriate for some charter schools. This is not to suggest that the charter schools need not be held accountable, but the accountability indicators need to be appropriate for the individual school. Most of them have quite small enrolments, particular clienteles and very specific charters. We believe that innovative projects need to be protected from premature and/or inappropriate evaluations, as these may jeopardize their viability by thwarting creativity and risk-taking.

Effective and reliable longitudinal studies must be designed and structured prior to the initiation of the study. This was a problem that emerged for us in conducting this study. In order to conduct some of the longitudinal examinations such as the effect size studies or the analysis of other measurable outcomes related to achievement not measured by the provincial tests, it is essential to determine the data recording structures within the schools prior to the onset of the study. In our study we found that all schools used some other forms of testing in addition to the provincial tests. The results however, tended to be stored in individual student records and were unretrievable for our purposes.

There was one unrealized objective of the present study: to compare the achievement of students in charter schools specifically with other schools offering similar types of programs for similar groups of students. When we asked the principals of the charter schools to identify another school that offered a similar program there was considerable hesitation. It was pointed out that the reason a charter school existed was because nobody else was doing things quite the same way. We were told that some schools offered similar programs for some students, but that there were no other schools with the specific whole school approach and purpose that each of these schools had committed itself to pursuing. The one exception to this was in relation to the Science Alberta Charter School, where we were told that a number of schools in the Edmonton Public Schools system were working with the very same mandate. However, these schools also had students involved in other programs as well as the science program. Secondly, these schools have only recently become involved with the science project and so comparative data were not available. In practical terms it is not possible to obtain scores for individual students whether on the PATs or on other tests. This makes it impossible to identify comparative sectors within schools that offer a particular program within a school that has a broader focus or serves a variety of clienteles.

IMPLICATIONS FOR POLICY, PRACTICE AND FURTHER STUDY

The evidence presented in this report highlights the generally strong levels of achievement in Alberta's charter schools on a range of measures. Our conclusions, and the findings on which they are based, suggest a number of implications or recommendations for education policy, practice and further study in Alberta and beyond.

1. The collection and communication of data on important but non-standardized measures of student growth and achievement.

Alternative schools such as charter schools may find that their unique learning goals and special student populations require systematic assessment of either a qualitative or quantitative nature, separate from the provincial achievement tests. These schools will best be able to demonstrate their effectiveness if they gather and store these data in a manner that can be easily reported and shared.

2. The widespread sharing of successful practices.

We recommend that Alberta Learning put in place structures whereby information regarding the practices and innovations being used in the charter schools are shared systematically with the public and separate school systems and with the general community.

3. Value-added analysis based on individual student progress over time.

As noted earlier, we were obliged to use the word "cohort" very loosely because we could have no assurance that the same children made up a given cohort over a three-year period. Those researchers wishing to conduct value-added research should set up data management systems with the schools that will allow for the tracking of individual progress over time and include appropriate safeguards relating to confidentiality. Such tracking systems will also serve the charter schools well, as they will be able to provide a more accurate and comprehensive picture of student achievement over time.

4. The progress of charter school students compared with matched sets of students in similar programs in other schools.

One objective of the present study we were unable to accomplish was to compare the achievement of students in charter schools with other schools offering similar types of programs for similar groups of students. Development of the capacity to track individual data will make it possible to identify sectors within schools that offer a particular program similar to a charter school focus and permit comparisons of outcomes among various delivery models. It will be essential to factor in socioeconomic data for the students to develop well-matched samples for comparison purposes.

5. The intensity of charter school effects in relation to duration in the program.

Research in Alberta charter schools could test the findings of studies by Solmon et al. (2002) and Gronberg & Jansen (2001), suggesting that the longer the student remains in the charter school program, the greater the achievement growth.

6. The ripple effects of charter schools on system performance.

It would be useful to examine the effects charter schools have had on practices in public and separate schools, a purpose set by government when first introducing charter schools in Alberta.

7. Cost-effectiveness.

As charter schools do not receive the same amount of funding as public and separate schools, a cost-effectiveness comparison may provide useful insights.

8. Assessment of various models of providing choice.

Charter schools represent a variety of ways in which public school systems can offer choice to parents and students. A comparison of the results found in charter schools with those in other kinds of alternative schools and programs could shed useful light on the part played in school success by the features which distinguish charter schools.

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